Company reference list
1. **HPP MOSTARSKO BLATO**
   Detail and final design (including as built documentation), supply, installation, programming and parameter setting, testing and commissioning of:
   - Main distribution 0.4kV AC and AC auxiliary supplies,
   - 220V DC auxiliary supply
   - UPS system,
   - Control, measuring, alarm and protection system for 2 generators with block transformers,
   - Control, measuring, alarm and protection system for 110kV and 20kV switchgears,
   - 110kV HIS switchgear,
   - Control system of entire HPP,
   - SCADA system,
   - Study "Impact of HPP Mostarsko blato on 110kV grid connection"
   - Supervision on installation for entire HPP,
   - Supervision on testing and commissioning for entire HPP

2. **HPP ZAKUČAC - 2x120 + 2x150 MVA**
   - Detail and final design for replacement of protection system for four generators,
   - Manufacture, installation, testing and commissioning of generator protection system.
   - 110kV switchgear control and protection system delivery
   - 110kV switchgear control and protection system, supervision on installation, testing and commissioning
   - 220kV switchgear control and protection system, supervision on installation, testing and commissioning
   - annual testing of generator numerical protection system

3. **HPP BATMAN Turkey - 3x75MVA, 1x7MVA, 1x5.7MVA**
   - Detail design of primary equipment

4. **PSHPP ČAPLJINA - 2x240 MVA - Pumped storage**
   - Detail and final design of refurbishment, supervision on installation, testing and commissioning of all 220 kV circuit breakers,
   - Detail and final design, manufacture of cubicles supply, installation, testing and commissioning of chronological event registration system for 2 generators and auxiliary systems,
   - Detail design of generator/motor regime changeover equipment replacement
   - Supply, installation, testing and commissioning of 35kV switchgear
   - Installation, testing and commissioning of new ABB-UNITROL 6800 type excitation system for two 240MVA units in the synchronous generator/synchronous motor and asynchronous generator regimes
   - Detail and final design, delivery and installation, testing and commissioning of electrical protection systems for: generator/motor 2x240MVA, and unit transformers.

5. **HPP PEĆ MLINI 2x18MVA**
   - Detail and final design, manufacture, delivery, installation at site, testing and commissioning of control and measuring system for two synchronous generators (based on SIEMENS equipment)
   - Detail and final design, manufacture, delivery, installation at site, testing and commissioning of protection system for two synchronous generators, 10(20)kV and 110kV switchgear (based on ABB protection equipment)
   - Detail and final design, manufacture, delivery, installation at site, testing, and commissioning of power station auxiliary supplies 0.4kVAC, DC power supply systems 220V,
   - Detail and final design, programming and parameter setting, delivery, installation, testing and commissioning of HPP control centre (SCADA, WINCC SIEMENS, mosaic mimic diagram).
6. HPP VINODOL 3x35MVA
   - Detail and final design, manufacture, installation at site, testing and commissioning of control and
governing system for synchronous generator 35MVA, 10.5kV (based on SIEMENS equipment).
   - Detail and final design of parent SCADA and control, signalization, protection, measuring and
regulation system with delivery of equipment and software, programming and parameter setting,
installation, testing and commissioning
   - Detail and final design, manufacture, installation at site, testing and commissioning of control,
turbine governor, excitation, protection and synchronisation system for synchronous generator
450kVA,

7. HPP RIJEKA 2x18.4MW
   - SCADA system
   - Control and automation system of A1 and A2 units
   - Final design of remote power supply supervision system for Valici Dam
   - Installation of remote power supply supervision system of Valići Dam
   - Replacement of electrical equipment at Valići Dam
   - Switching automation
   - Replacement of cooling water pressure regulator at HPP engine room
   - Installation of remote power supply supervision system of SS Rijeka
   - Final design of diesel generator automation of HPP Rijeka and Valići Dam
   - Upgrade of SCADA system

8. HPP SENJ 3x72MW
   - Testing and parametrization of numerical protection system for generator 1, 2 and 3
   - Testing of busbar and breaker failure protection system
   - Delivery and installation of relay for generator’s 100% stator protection

9. HPP SKLOPE 22.5 MW
   - Testing and parametrization of numerical protection system for generator

10. HPP VARAŽDIN
    - Testing of protection system for small generator and auxiliary transformer
    - Protection system replacement at mHPP Čakovec
    - Measuring transducers replacement at HPP Čakovec and HPP Dubrava

11. HPP KRALJEVAC
    - Detail design and delivery of valves automation equipment

12. HPP DUBRAVA
    - Replacement of auxiliary transformer protection system, biological minimum generating unit
and small HPP
13. **HPP RAMA - 2x111MVA**
- Detail and final design for replacement, of generator voltage 15.65kV equipment, power station auxiliary supplies 0.4kVAC, DC power supply systems 220V and 24V, installation at site, testing and commissioning.
- Detail and final design for replacement of control, protection, measuring and alarm system equipment in the entire power plant, manufacture, installation at site, testing and commissioning.
- Detail and final design, supervision on installation and start-up of 245 kV Gas Insulated Switchgear (GIS) comprising of two generator transformer bays, four OHL bays, one power transformer 220/35 kV bay and one bus-coupler bay.
- 220kV GIS switchgear control and protection system, installation, testing and commissioning.
- Detail and final design, testing and commissioning of replacement of 35 kV switchgear.
- Detail and final design, manufacture, installation, testing and commissioning of 35 kV control and protection system.
- Detail and final design, programming and parameter setting, delivery, installation, testing and commissioning of HPP control centre (SCADA, LAN).
- Detail and final design, installation, testing and commissioning of dam oscillation system.
- Detail and final design, programming and parameter setting, delivery, installation, testing and commissioning of protection and voltage regulation for new transformer 220/35 kV, 40 MVA.
- Detail and final design for replacement of valve control system and connection of all equipment with central supervision system at HPP Rama dam.
- Detail and final design for replacement of excitation systems, turbine control and governing equipment for two units 111MVA, 15.65kV, installation at site, testing, and commissioning.
- Detail and final design for replacement of common facilities of engine room.
- Detail and final design, manufacture, installation at site, testing and commissioning of control, turbine governor, excitation, protection and synchronisation system for synchronous generator 750kVA.

14. **HPP MOSTAR 3x30 MVA**
- Detail and final design for replacement, of generator voltage 10.5kV equipment, power station auxiliary supplies 0.4kVAC, DC power supply systems 220V and 24V, manufacture, installation at site, testing and commissioning.
- Detail and final design for replacement of control system, protection, measuring and alarm system equipment in the entire power plant, manufacture, installation at site, testing and commissioning.
- Detail and final design, programming and parameter setting, delivery, installation, testing and commissioning protection system for three generator unit 30MVA, 10.5 kV (ABB protection devices).
- Detail and final design, programming and parameter setting, supply, installation, testing and commissioning of HPP control centre (SCADA WIN CC SIEMENS, LAN, mosaic mimic diagram), protection engineer working place, remote parameter setting and protection control (ABB equipment).
- Detail and final design, supervision of installation and start-up of 110 kV Gas Insulated Switchgear, programming and parameter setting, delivery, installation, testing and commissioning control and protection system.
- Detail and final design, manufacture, installation, testing and commissioning of 10kV and 35 kV control and protection system (ABB protection devices).
- Detail and final design, installation, testing and commissioning of dam oscillation system.
- Detail and final design for replacement of excitation systems, turbine control and governing equipment for three units 30MVA, 10.5kV, (SIEMENS equipment) installation at site, testing, and commissioning.

15. **HPP JUG**
- Testing of numerical protection systems and maintenance.

16. **HPP TREBINJE 2**
- Detail design of 35kV switchgear.
17. **HPP JAJCE 2 - 3x12 MVA**
- Detail and final design, supply, installation, testing and commissioning of protective relaying system for 3 synchronous generators and block transformers,
- Detail and final design, supply, installation, testing and commissioning of control, protection, measuring and alarm system for 35 kV switchgear,
- Detail and final design, supervision on installation and commissioning for the refurbishment of MV equipment for 35kV switchyard,
- Detail and final design, manufacture, delivery, installation at site, testing and commissioning of control and governing system for three synchronous generators (based on SIEMENS equipment)
- Detail and final design, manufacture, delivery, installation at site, testing and commissioning of protection system for three synchronous generators (based on ABB protection equipment)
- Detail and final design, manufacture, delivery, installation at site, testing and commissioning of power station auxiliary supplies 0.4kVAC, DC power supply systems 220V,
- Detail and final design, programming and parameter setting, delivery, installation, testing and commissioning of HPP control centre (SCADA, WINCC SIEMENS)
- Review and update of preliminary design project on extension of HPP Jajce II issued in 1985

18. **HPP JAJCE 1 - 2x36MVA**
- Detail and final design for replacement of generator voltage 10.5kV equipment, power station auxiliary supplies 0.4kVAC, DC power supply systems 220V and 24V, installation at site, testing, and commissioning,
- Detail and final design for replacement of control system, protection, measuring and alarm system equipment in the entire power plant, manufacture, installation at site, testing, and commissioning,
- Detail and final design for the refurbishment of HV equipment for 110 kV switchyard and of MV equipment for 35 kV switchyard,
- Detail and final design for replacement of turbine control and governing equipment for two units 36MVA, 10.5kV,
- Detail and final design, programming and parameter setting, supply, installation, testing and commissioning of HPP control centre (SCADA, LAN, mosaic mimic diagram),
- Installation works during replacement of two power transformers 36MVA,
- Detail and final design, installation at site, testing and commissioning of excitation systems for two units 36MVA, 10.5kV. Detail design, programming and parameter setting, testing and commissioning of excitation system ABB UNITROL 5000
- Detail and final design, installation at site, testing and commissioning of generator synchronization equipment
- Installation, testing and commissioning of new auxiliary transformers

19. **HPP FORMIN - 2x74 MVA ; 2x1,1 MVA**
- Detail and final design, production, delivery, installation, testing and commissioning of new ABB-UNITROL 6800 type excitation system for two 74MVA units,
- Detail and final design, production, delivery, installation, testing and commissioning of new ABB-UNITROL 6080 type excitation system for two 1,1MVA units

20. **HPP Ceršak**
- Excitation system Unitrol 1010, MHE Ceršak

21. **HPP GRIMSA 1x3,5 MVA**
- Detail design, FAT and delivery of excitation systems ABB UNITROL 6080 for one unit 3,5MVA,

22. **HPP FIERZA, Albania**
- Installation, testing and commissioning of new excitation system for 4 units 125 MW, 13.8kV

23. **HPP VAU DEJES, Albania**
- Installation, testing and commissioning of new excitation system for 1 unit 50 MW, 10.kV

24. **HPP Vieze**
- Commissioning of excitation system ABB UNITROL 1000-15
25. **HPP SALAKOVAC**  
   - Generator “1” excitation system repair,  
   - Overhaul of generators “2” and “3” excitation systems and generators “1”, “2” and “3” control system

26. **HPP GRABOVICA**  
   - Generator “2” excitation system repair

27. **HPP GOLUBIĆ**  
   - Annual overhaul of the excitation system

28. **HPP JARUGA**  
   - Annual overhaul of the excitation system

29. **HEP Production d.d., PP HE ZAPAD**  
   - Procurement, erection and commissioning of superior process stations and other necessary equipment for the establishment of process communication nodes in HE Hydroelectric Power Plants

30. **HPP TREBINJE 1**  
   - Testing and overhaul of the excitation systems

31. **HPP PIVA**  
   - Testing and overhaul of the excitation systems

32. **HPP LIGONCHIO 3,6MVA**  
   - Detail and final design, manufacture, installation at site, testing and commissioning of excitation system for synchronous generator 3,6MVA,

33. **HPP CASTELVIERO 2x3,6MVA**  
   - Site supervision, testing and commissioning of excitation, system for two synchronous generators 3,6MVA,

34. **HPP SARENTINO 2x14,6MVA**  
   - Site supervision, testing and commissioning of excitation, system for two synchronous generators 14,6MVA,

   - **HPP DICLE 2x65 MVA (UNDER EXECUTION)**  
     - Detail and final design, manufacture, delivery, installation at site, testing and commissioning of control and measuring system for two synchronous generators (based on SIEMENS equipment)  
     - Detail and final design, manufacture, delivery, installation at site, testing and commissioning of protection system for two synchronous generators and 166kV switchgear (based on SIEMENS protection equipment)  
     - Detail and final design, programming and parameter setting, delivery, installation, testing and commissioning of HPP control centre (SCADA, PCS7 SIEMENS)  
     - Detail and final design for replacement of turbine control and governing equipment for two units (including hydraulic pressure units and servomotors), installation at site, testing, and commissioning  
     - Detail and final design, production, delivery, installation, testing and commissioning of new ABB-UNITROL 6800 type excitation system for two units  
     - Detail and final design, manufacture, delivery, installation at site, testing and commissioning of control and measuring system for two synchronous generators (based on SIEMENS equipment)

35. **HPP DRAVSKE ELEKTRANE MARIBOR 24MVA**  
   - Detail and final design, manufacture, installation at site, testing and commissioning of excitation system UNITROL 6080 system for synchronous generator 24MVA,
36. **TPP RIJEKA – 1x376MVA**
- Detail and final design for replacement of electrical protection systems for: generator 376MVA, unit transformer 370 MVA 20/220 kV, auxiliary supplies transformers 2x20 MVA 20/6,3 kV and 1x25 MVA 220/25 kV.
- Detail and final design for replacement of busbar protection and breaker failure protection for 220 kV switchyard.
- Detail and final design for replacement of electrical protection systems for 6,3 kV auxiliary supplies switchgear
- Detail and final design, programming and parameter setting, installation, testing and commissioning of protection communication network (47 IEDs) and monitoring system (SCADA)
- Calculation of protection settings and case study for all subsystems
- Manufacture, delivery, installation, parameter setting, testing and commissioning of all systems according to fore mentioned designs.
- Annual testing of relay protection systems
- Overhaul of the diesel generator
- Detail and final design for replacement of LV switchgear secondary equipment with delivery of equipment and software, parameter setting, installation, testing and commissioning
- Replacement of the Measuring device

37. **TPP EL-TO Zagreb**
- Calculation of protection settings
- Final design, delivery, installation, testing and commissioning of energy metering system in bus section bay
- Control room revitalization

38. **TPP OSIJEK**
- Reconstruction of 6,3kV switchgear protection system,
- Testing of 6,3kV switchgear protection system
- Replacement of excitation system for generator 45MW – manufacture, delivery, parameter setting, installation, testing and commissioning of UNITROL 6080 based excitation system

39. **TPP SISAK**
- Creation of an elaboration of the settings, selectivity and coordination of the operation of the 220 kV relay protection system TE Sisak

40. **KTTP JERTOVEC**
- Detail design of the power station auxiliary supplies 0.4kVAC
- Manufacture and delivery of equipment for extension of power station auxiliary supplies 0.4kVAC
- Detail and final design for refurbishment of station auxiliary supplies for TG1 and TG2 generators

41. **TPP PLOMIN II**
- Parameter setting and commissioning of synchronization system

42. **TPP TRBOVLJE**
- Testing, commissioning and supervision on installation of excitation and synchronization system of 156MVA generator (design, delivery, installation, testing and commissioning of new excitation system Unitrol 6800 and system synchronization unit Synchrotact 5200)
- Annual testing of the excitation systems,

43. **TPP LJUBLJANA**
- Detail and final design, production, delivery, installation, testing and commissioning of new ABB-UNITROL 6080 type excitation system for 40MVA unit
- Calculation of protection and excitation system settings TA2
- Excitation system parameterization

44. **TPP BRESTANICA**
- Overhaul of the excitation system G14-G15
45. **TPP TUZLA**
   - Protective relaying system for 1 generator and block transformer (subcontracted for ABB),
   - Detail and final design, installation, testing and commissioning of new excitation and synchronization system for generator IV, 247 MVA

46. **TPP KAKANJ**
   - Generator (230MW) excitation system review,
   - Annual testing of the excitation systems,
   - Design of the central measuring system, data processing and registration of generated/used electricity,
   - Supply, testing and commissioning of UNITROL 5000 excitation system for 147,5MVA unit,
   - Supply, testing and commissioning of UNITROL 5000 excitation system for 270,5MVA unit

47. **BE-TO GLINA**
   - Detail and final design, delivery, installation, testing and commissioning of new UNITROL excitation system for generator 6MVA

48. **ŽUPANJA SUGAR MILL 1x8,75 MVA**
   - Detail and final design of new protection and excitation system for the 8.75 MVA generator,
   - Manufacture, installation, testing and commissioning of new generator protection system,
   - Installation, testing and commissioning of excitation system
   - Annual testing of generator protection system
   - Annual testing of 6,3kV switchgear protection system

49. **VIRO SUGAR MILL 1x10MVA**
   - Detail and final design, production, delivery, installation, testing and commissioning of new ABB-UNITROL 6080 type excitation system for 10MVA unit
   - Detail and final design, delivery and installation, testing and commissioning of electrical protection systems for generator 10MVA, and unit transformers,
   - Supply and delivery of transformer for auxiliary power supply, transformer T60 and excitation system setting

50. **NATRON HYAT MAGLAJ TG2-21 MVA, TG3-32 MVA**
   - Detail and final design, production, delivery, installation, testing and commissioning of new ABB-UNITROL 6080 type excitation system for 32MVA unit
   - Detail and final design, delivery and installation, testing and commissioning of electrical protection systems for generator 32MVA, and unit transformers,
   - Testing of generator protection system (TG2 and TG3)
   - Testing of generator excitation system (TG2 and TG3)

51. **KOLIČEVO PAPIR DD**
   - Excitation system repair

52. **RADEČE PAPIR DD**
   - Annual overhaul of the excitation system

53. **SISECAM SODA LUKAVAC**
   - Design of new excitation system integration
   - Revision of excitation system
   - Detail and final design for replacement of generator protection system, installation at site, testing, and commissioning

54. **INA RAFINERIJA SISAK (ABB)**
   - Manufacture, testing and delivery of auxiliary supply system

55. **NUCLEAR POWER PLANT KRŠKO**
   - Protection relays parameter setting in new 6kV switchgear
55. **NUCLEAR POWER PLANT BELENE**
- Consulting services - definition of the configuration of the offsite power system for the Belene Nuclear Power Plant, calculations and basic design.

56. **ENERSOL IRLEAND**
- Discrimination study for Ballincollig hill
- Design of SS 110/20kV

57. **OFFICE BUILDING EP HZ HB MOSTAR**
- Delivery, installation and commissioning of electrical equipment,
- Detail design, delivery, installation and commissioning of intelligent building control system

58. **JP ELEKTROPRIVREDA HZ HB**
- Delivery, installation, testing and commissioning of Load frequency control system at Production Control Centre Mostar
- Design, delivery, installation and commissioning of equipment necessary for connection of existing protection system to common server and function upgrade of existing SCADA system in Mostar, Jajce I Jajce II hydro power plants
- Design, delivery, installation and commissioning of equipment necessary for connection and communication of hydro power plants at Neretva and Vrbas river with parent centres
- Design, delivery, installation and commissioning of equipment necessary for expansion of SCADA system with functions of optimal production governing including data analysis and visual display
- Annual corrective maintenance of secondary equipment for 7 HPP (Neretva River Basin and Vrbas River Basin),
- Annual protection and excitation system testing for 7 HPP (Neretva River Basin and Vrbas River Basin),
- Elaboration of the validity of applied protection measures against atmospheric voltage surges and lightning strike in 110kV and 35kV switchyard in the Vrbas River Basin
- Calculation of short-circuit and earth-faults current in switchgear 6kV, 10kV, 35kV, 110kV

59. **SADAM CASTIGLIONESE S.p.A Italy**
- Detail and final design of the generator protection for four generators (12MVA, 10.5MVA, 2x2.5MVA), manufacture, delivery, installation, protection setting, testing and commissioning.

60. **ELECTRICAL ENERGY MEASURING SYSTEM WITH LOCAL AND REMOTE READING FOR PRODUCTION UNITS IN EP HZ-HB**
- Detail and final design, installation, parameter setting and commissioning of local data loggers, local metering centre and communication equipment for 6 hydro-power plants and parameter setting of remote metering centre

61. **WF/SS 110kV Jelinak 30MW**
- 110 kV HIS switchgear detail and final design,
- 110kV HIS switchgear control and protection system, installation, testing and commissioning
- 110kV HIS switchgear primary equipment, installation, testing and commissioning
- 20 kV GIS switchgear detail and final design,
- 20kV GIS switchgear control and protection system, installation, testing and commissioning
- 20kV GIS switchgear primary equipment, installation, testing and commissioning
- Detail and final design of the new protection and control system for the entire substation, manufacture, installation, testing and commissioning,
- Detail and final design of the new AC supply system for the entire substation, manufacture, installation, testing and commissioning,
- Detail and final design, installation, testing and commissioning of SCADA system
- Detail and final design, manufacture, installation, testing and commissioning of the new metering system,
- Parameter setting and testing of signal to national and regional dispatching centre
- Annual testing
62. DISPATCHING CENTRE MOSTAR
- Detail and final design, software design, delivery, installation, testing and commissioning of equipment to include metering spots at SS Drvar, SS Kiseljak, SS Neum, SS Grude, SS Čapljinca, SS Uskoplje, SS Livno, SS Bosansko Grahovo, SS Mostar 1, SS Vitez, SS Kaonik in remote supervision on metering system for “0” phase extension of dispatching centre of electrical utility of Elektroprivreda HZHB
- Detail and final design, software design, delivery, installation, testing and commissioning of equipment to include SS Mostar 4, SS Mostar 3, SS Jajce 2, SS Mostar 5, SS Mostar 7 (IEC 60870-5-101) in remote control as well as supervision on metering system for second “0” phase extension of dispatching centre of electrical utility of Elektroprivreda HZHB
- Detail and final software design for calculation of real time deviations from planned production, consumption and contracted transits for electrical utility of Elektroprivreda HZHB

63. SS 400/220/110/35/10(20)kV MOSTAR 4
- Preliminary, detail and final design for the replacement of primary equipment for the entire substation,
- Detail and final design of the new protection and control system for the entire substation, manufacture, installation, testing and commissioning,
- Detail and final design of the new AC and DC supply system for the entire substation, manufacture, installation, testing and commissioning,
- Detail and final design, installation, testing and commissioning of SCADA system — ABB MicroSCADA,
- Detail and final design, manufacture, installation, testing and commissioning of the new metering system,
- Parameter setting and testing of signal to national and regional dispatching centre
- Detail and final design, manufacture, installation, testing and commissioning of new OHL Mostarsko blato line protection, control, measuring and alarm system

64. SS 400/220/110/35/10(20)kV BANJA LUKA 6
- Detail and final design of primary and secondary equipment (replacement of primary equipment, auxiliary supplies, station control, protection and metering system),
- Detail and final design, manufacture, testing, and delivery of station control, protection and metering system for entire SS,
- Detail and final design, manufacture, testing and delivery of auxiliary supply system 0.4kVAC, 220VDC, 48VDC

65. SS 400/220/110/35/10(20)kV SARAJEVO 20
- Detail design, manufacture, testing, and delivery of new station control, protection and metering system for entire SS,
- Detail design, manufacture, testing and delivery of new auxiliary supply system 0.4kVAC, 220VDC,
- Installation, testing and commissioning of primary and secondary equipment,
- Detail design, manufacture, installation, testing and commissioning of the new metering system

66. SS 400/110kV VIŠEGRAD
- Detail design, manufacture, testing, and delivery of new station control, protection and metering system for entire SS,
- Detail design, manufacture, testing and delivery of new auxiliary supply system 0.4kVAC, 220V DC

67. SS 400/220/110kV TREBINJE
- Detail design, manufacture, testing, and delivery of new station control, protection and metering system for entire SS.
- Detail and final design for replacement of primary and secondary equipment
- Installation of primary and secondary equipment, testing and commissioning
68. **SS 400/110kV GACKO**
   - Detail and final design of primary and secondary equipment (replacement of primary equipment, auxiliary supplies, station control, protection and metering system)
   - Detail and final design, manufacture, testing, and delivery of station control, protection and metering system for entire SS.
   - Installation of primary and secondary equipment, testing and commissioning

69. **SS 400/110kV UGLJEVIK**
   - Detail design, manufacture, testing, and delivery of new station control, protection and metering system for entire SS.
   - Detail design, manufacture, testing and delivery of new auxiliary supply system 0.4kVAC, 220V DC

70. **SS 220 kV MOSTAR 3**
   - Detail and final design of the replacement of primary equipment
   - Detail and final design of the new protection and control system for the entire substation, manufacture, installation, testing and commissioning
   - Detail and final design of the new AC and DC supply system for the entire substation, manufacture, installation, testing and commissioning
   - Detail and final design, manufacture, installation, testing and commissioning of the new metering system,
   - Detail and final design, installation, testing and commissioning of SCADA system – ABB MicroSCADA
   - Parameter setting and testing of signal to national and regional dispatching centre

71. **SS (SF6 METAL-CLAD TYPE) 220/33/11kV MADINAT ZAYED & LIWA - ABU DHABI (ANSALDO)**
   - Detail design of control system, measuring and alarm system

72. **SS 220/110kV JAJCE 2**
   - Preliminary, detail and final design of the replacement of primary equipment for the entire substation
   - Detail and final design of the new protection and control system, manufacture, installation, testing and commissioning
   - Detail and final design of the new AC and DC supply system for the entire substation, manufacture, installation, testing and commissioning
   - Detail and final design, manufacture, installation, testing and commissioning of the new metering system
   - Detail and final design, installation, testing and commissioning of SCADA system – ABB MicroSCADA
   - Parameter setting and testing of signal to national and regional dispatching centre

73. **QATAR GENERAL ELECTRICITY & WATER CORPORATION**
   - Review and as-built documentation for 4 substations, voltage levels up to 220 kV.

74. **SS BREZA (Design and delivery for ABB)**
   - Detail and final design of protective relaying system for 220kV switchgear

75. **SS 220/110/xkV PRIJEDOR**
   - Detail and final design of primary and secondary equipment (replacement of station control, protection and measuring system),
   - Manufacture, testing, and delivery of station control, protection and measuring system,
   - Detail and final design, manufacture, delivery, installation at site, testing and commissioning of auxiliary supplies 0.4kVAC, 220DC,
   - Installation of primary and secondary equipment, testing and commissioning,
   - Detail design, manufacture, installation, testing and commissioning of the new metering system
76. **SS 110/35/20kV MOSTAR 1**
- Detail and final design of the replacement of primary equipment
- Detail and final design of the new protection and control system, manufacture, installation, testing and commissioning
- Detail and final design of the new AC and DC supply system for the entire substation, manufacture, installation, testing and commissioning
- Detail and final design, installation, testing and commissioning of SCADA system
- 110kV circuit breaker and disconnectors delivery, installation, testing and commissioning
- 110kV 20 MVA power transformer delivery, installation, testing and commissioning
- 20kV switchgear delivery, installation, testing and commissioning
- 35kV switchgear delivery, installation, testing and commissioning

77. **SS 110kV MOSTAR 1 – RAŠTANI**
- Detail and final design for the refurbishment 110kV switchgear with local control, protection and DC and AC auxiliary supplies,
- Detail design for the secondary equipment in 110kV switchgear installation, testing and commissioning of 110kV switchgear equipment,
- Installation, testing and commissioning of secondary equipment and 220V DC power supply system,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

78. **SS 110/2x10/35kV POSUŠJE**
- Preliminary, detail and final design, supply, testing and commissioning of equipment for control, protection, measuring and alarm system,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre
- **SS 110/2x10/35kV MOSTAR 6 - RUDNIK**
  - Preliminary, detail and final design, supply, testing and commissioning of equipment for control, protection, measuring and alarm system
  - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre
  - Izrada dijela dokumentacije i radovi na rekonstrukciji TS Mostar 6

79. **SS 110/2x10/35kV ORAŠJE**
- Preliminary, detail and final design, manufacture, delivery, installation, testing and commissioning of station control, protection, measuring and alarm system 220V DC and 0.4kVAC power supply system,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

80. **SS 110/35/10(20)kV GRUDE**
- Preliminary, detail and final design manufacture, delivery, installation, testing and commissioning of station control, protection, measuring and alarm system and 220VDC and 0.4kVAC power supply system,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre
81. SS 110/35/10(20)kV ODŽAK
- Preliminary, detail and final design, manufacture, delivery, installation, testing and commissioning of equipment for control, protection, measuring and alarm system and 220VDC and 0.4kVAC power supply system,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

82. SS 110/35/10(20)kV LIVNO
- Detail and final design for the refurbishment of HV and MV equipment, installation at site, testing and commissioning,
- Detail and final design, manufacture, installation at site, testing and commissioning of auxiliary supplies 0.4kVAC and 220V DC,
- Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

83. SS 110/35/10(20)kV TOMISLAVGRAD
- Detail and final design for the refurbishment of HV and MV equipment, installation at site, testing and commissioning,
- Detail and final design, manufacture, installation at site, testing and commissioning of auxiliary supplies 0.4kVAC and 220V DC,
- Detail and final design, manufacture, installation at site, testing and commissioning of control, protection (SIPROTEC 4) and measuring system for entire substation,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

84. SS 110/10(20)kV ŠIROKI BRIJEG
- Detail and final design for the refurbishment of HV and MV equipment, installation at site, testing and commissioning,
- Detail and final design, manufacture, installation at site, testing and commissioning of station auxiliary supplies 0.4kVAC and 220V DC,
- Detail and final design, manufacture, installation at site, testing and commissioning of control, protection (SIPROTEC 4) and measuring system for entire substation,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

- SS JAJCE 1
- Detail design for the refurbishment of HV equipment for two 110kV OHL bays,
- Delivery, installation at site, testing and commissioning of HV equipment for two 110kV OHL bays,
- Detail design for replacement of control system, protection, measuring and alarm system equipment for two 110 kV OHL bays and one 110/35 kV transformer bay,
- Manufacture, installation at site, parameter setting, testing, and commissioning of control, protection, measuring and alarm system equipment for two 110 kV OHL bays and one 110/35 kV transformer bay (subcontracted for ABB),
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre
- installation, testing and commissioning of auxiliary transformers (parameter setting of protection relays, installation of thermal protection, connecting with SCADA and protection system
85. **110/10(20)kV ČITLUK**
- Detail design for the refurbishment of HV and MV equipment,
- Detail design for the replacement of station auxiliary supplies 0.4kV AC and 220V DC,
- Manufacture, installation at site, testing and commissioning of auxiliary supplies 0.4kVAC and 220VDC,
- Installation at site, testing and commissioning of HV equipment,
- Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

86. **SS 110/35/10(20)kV LJUBUŠKI**
- Detail design for the refurbishment of HV and MV equipment,
- Detail design for the replacement of station auxiliary supplies 0.4kV AC and 220V DC power supplies,
- Manufacture, installation at site, testing and commissioning of auxiliary supplies 0.4kVAC and 220VDC,
- Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

87. **SS 110/10/20kV KUPRES**
- Preliminary, detail and final design of entire SS,
- Manufacture, delivery, installation, testing and commissioning of equipment for control, protection, measuring and alarm system

88. **SS 110/35/10(20)kV RAMA-PROZOR**
- Preliminary design,
- Detail design,
- Installation, testing and commissioning of control system, protection, measuring and alarm system

89. **SS 110/35/10(20)kV NOVI TRAVNIK**
- Preliminary, detail and final design of entire substation

90. **SS 110/35/10(20)kV MOSTAR 5**
- Detail design for the refurbishment of HV and MV equipment,
- Detail design for the replacement of station auxiliary supplies 0.4kV AC and 220V DC, protection and measuring system,
- Detail design for the replacement of station auxiliary supplies 0.4kVAC and 220VDC,
- Manufacture, installation at site, testing and commissioning of auxiliary supplies 0.4kV AC and 220V DC power supplies,
- Installation at site, testing and commissioning of HV equipment, and secondary equipment,
- Installation, testing and commissioning of ABB MicroSCADA
- Testing of signal to national and regional dispatching centre
- Detail and final design, manufacture, installation, testing and commissioning of new OHL Mostarsko blato line protection, control, measuring and alarm system

91. **SS 110/35/10(20)kV ČAPLJINA**
- Detail design for the refurbishment of HV and MV equipment,
- Detail and final design for the replacement of station auxiliary supplies 0.4kVAC and 220V DC,
- Manufacture, installation at site, testing and commissioning of auxiliary supplies 0.4kVAC and 220VDC,
- Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation,
- Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre
92. **SS 110/10(20) kV VITEZ**
   - Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation.
   - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

93. **SS 110/10(20) kV KAONIK-BUSOVACA**
   - Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation.
   - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

94. **SS 110/35/10(20) kV BOSANSKO GRAHOVO**
   - Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation.
   - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

95. **SS 110/10(20) kV NEUM**
   - Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation.
   - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

96. **SS 110/35/10(20) kV STOLAC**
   - Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation.
   - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SIEMENS WinCC workstation + SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

97. **SS 110/35/10(20) kV KISELJAK**
   - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

98. **SS 110/35/10(20) kV DRVAR**
   - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (SICAM SAS), parameter setting and testing of signal to national and regional dispatching centre

99. **SS 110/10(20)kV MOSTAR 7**
   - Detail design for the refurbishment of HV and MV equipment,
   - Detail and final design for the replacement of station auxiliary supplies 0.4kVAC and 220V DC,
   - Manufacture, installation at site, testing and commissioning of auxiliary supplies 0.4kVAC and 220VDC,
   - Detail and final design, manufacture, installation at site, testing and commissioning of control, protection and measuring system for entire substation,
   - Detail and final design, manufacture, installation at site, testing and commissioning of SCADA system (ABB MicroSCADA workstation), parameter setting and testing of signal to national and regional dispatching centre

100. **SS 110/20/6,3kV BANJALUKA 7 – “TURN KEY”**
    - Detail and final design, installation of equipment, testing and commissioning of entire SS
101. SS 110/20 kV ČELINAC
   - Final design

102. SS 110/20/10 kV USKOPLJE
   - Detail and final design of the extension of MV switchgear

103. SS 110/20kV MESIHOVINA, VELIKA VLAJNA AND BOROVA GLAVA
   - Basic and detail design of substations for 3 windfarms in Tomislavgrad, Livno and Mostar (BiH)

104. QATAR TRANSMISSION SYSTEM - PHASE IV.
   - Final design – as-built documents for 17 substations, voltage levels up to 132 kV for Consortium COGELEX ALSTHOM – SCHNEIDER ELECTRIC – ABB SUBSTATIONS

105. ELEKTROPRENOŠ BANJALUKA
   - Detail design, manufacture, testing, and delivery for the replacement of station control, protection and measuring system for 17 substations 110/x/x kV in Republika Srpska

106. SS 35/10(20)kV NOVI GRAD
   - Preliminary and detail design of entire SS 35/10(20) kV

107. SS 35/10(20)kV TOLISA
   - Preliminary and detail design of SS 35/10(20) kV including manufacture, delivery, installation, testing and commissioning of equipment for control, protection, measuring and alarm system as well as 220VDC and 0.4kVAC power supply system

108. SS 35/10(20)kV GLAMOČ
   - Preliminary, detail and final design of entire SS 35/10(20)kV, installation, testing and commissioning including manufacture, delivery, installation, testing and commissioning of equipment for control, protection, measuring and alarm system as well as 220VDC and 0.4kVAC power supply system

109. SS 35/10(20)kV DOMALJEVAC
   - Preliminary and detail design of SS 35/10(20)kV

110. SS 35/10(20)kV BLIDINJE
    - Preliminary and detail design of SS 35/10(20) kV

111. SS 35/10(20)kV RAKITNO
    - Preliminary and detail design of SS 35/10(20) kV

112. SS 35/10(20)kV KOČERIN
    - Preliminary and detail design of SS 35/10(20)kV

113. SS 35/10(20)kV ZIDINE
    - Preliminary and detail design of SS 35/10(20)kV

114. TS KUTINA
    - Delivery of equipment and prefabricated equipment (110kV control cabinet, cellular computer, measuring cabinets 110kV)

115. TS KNEGINEC
    - Electrotechnical engagement of TS Kneginec in SDV HEP-OPS PRP ZAGREB

116. TS VARAŽDIN
    - Works on parameter setting and commissioning of the 7SD relay in TS Varaždin and HPP Čakovec as well as testing on the other side of the line

117. PLIVA HRVATSKA
    - Testing of 10kV and 20kV switchgear protection system at TS1 Savski Marof
118. **Radošević d.o.o.**
- Final design, assembly, factory testing, delivery and commissioning of UNITROL 1010 excitation system

119. **VIPnet usluge d.o.o.**
- Visualization and Monitoring 10kV Plant (SIEMENS 7SJxx)
- Visualization, monitoring and management of the 0,4kV (SENTRON 3WL and 3VL)
- Creation of software support, testing and commissioning of 0,4kV switchgear
- Creating the protection settings for the SN plant

120. **ABS SISAK d.o.o. (former Iron factory)**
- testing of electrical protection system TR1 63MVA i 8 switchgear

121. **BASLER**
- commissioning of excitation, system

122. **BAHREIN**
- commissioning of excitation, system

123. **HAC (Croatian highway company):**
*Technical and commercial supervision on:*
- Electrical equipment of tunnel Sv. Rok on highway Zagreb-Split,
- Power supply equipment of tunnel Sv. Rok on highway Zagreb-Split,
- Electrical equipment of tunnels Čelinka, Bristovac, Ledenik and Krpani on highway Zagreb-Split,
- Equipment of traffic control centre COKP Sv. Rok on highway Zagreb-Split,
- Equipment of traffic control centre COKP Dugopolje on highway Zagreb-Split,
- Electrical equipment of tunnel Dubrava on highway Zagreb-Split,
- Power supply equipment for part Zadar 2-Pirovac on highway Zagreb-Split,
- Electrical lighting equipment for part Zadar 2-Pirovac on highway Zagreb-Split
- Power supply equipment for part Vrpolje-Prigomet on highway Zagreb-Split,
- Electrical lighting equipment for part Vrpolje-Dugopolje on highway Zagreb-Split
- Reconstruction of OHL and LV network on Zagreb-Macelj highway
- Displacement of telecommunication infrastructure on Zagreb-Macelj highway
- Displacement and reconstruction of OHL and LV network as well as telecommunication, water, gas and sewerage infrastructure on Zagreb – Sisak highway

124. **ELEKTROPRIVREDA HZ-HB**
*Technical supervision on:*
- Reconstruction of SS Mostar 4 (400/220/110/35/10(20)kV)
- Reconstruction of SS Jajce 2 (220/110/35 kV)
- Reconstruction of SS Mostar 3 (220 kV)
- Construction of SS Novi Travnik (110/35/10(20) kV)
- Reconstruction of OHL 220 kV SS Mostar 4-HPP Čapljina
- Reconstruction of OHL 110 kV SS Mostar 4-SS Mostar 1
- Reconstruction of SS Čapljina (110/35/10(20)kV)
- Construction of SS Rama-Prozor (110/35/10(20) kV)
- Construction of SS Kupres (110/35/10(20) kV)
- Reconstruction of SS Livno (110/35/10(20) kV)
- Reconstruction of SS Tomislavgrad (110/35/10(20) kV)
- Construction of SS Orašje (110/35/10(20) kV)
- Construction of SS Odžak (110/35/10(20) kV)
- Reconstruction of SS Ljubuški (110/35/10(20)kV)
- Reconstruction of SS Mostar 5 (110/35/10(20)kV)
- Reconstruction of SS Mostar 6 (110/35/10(20)kV)
- Reconstruction of SS Mostar 7 (110/35/10(20)kV)
125. **WORLEY PARSONS**

Consulting services for:

- Definition of the configuration of the offsite power system for the New Nuclear Power Plant in Khabarovsk Region,
- Definition of the configuration for the power supply configuration for suitable high output of reconstruction of ash and slag removal system in 3800MW coal fired Thermal Power Plant Reftinskaya,
- Evaluation of the medium voltage supply and SCADA system for ash and slag removal in TPP Reftinskaya
Various Reference Pictures
Substation protection cubicles ready for delivery

Phone: +385 1 34 36 333
Fax: +385 1 34 36 334
E-mail: info@energocontrol.hr
Low Voltage Supply in our Workshop during Manufacture
SS 110/20/6,3kV BANJALUKA 7 – "TURNKEY"

Phone: +385 1 34 36 333
Fax: +385 1 34 36 334
E-mail: info@energocontrol.hr