Green Building and Smart City Solutions
Wind and Solar Power Plant Projects in GCC

ILF Consulting Engineers
General ILF Presentation

ILF at a glance

• Leading international, independent engineering and consulting firms (100% privately owned)
• Established in 1967
• 2015 turnover: > EUR 200 million
• Over 2,000 employees
• Headquarters in Austria and Germany
• More than 40 offices worldwide
• 6,000 projects successfully executed
• Certified to ISO 9001, OHSAS 18001, ISO 14001
Offices and projects

• Over 6,000 successful international projects

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ILF Consulting Engineers
General ILF Presentation

- **Business areas**

**Oil & Gas**
- Upstream facilities
- Pipeline systems
- Underground storage facilities
- Tank farms & terminals
- Refineries & petrochemical plants

**Water & Environment**
- Hydropower plants
- Water transmission systems
- Water supply & wastewater networks
- Water & wastewater treatment plants

**Energy & Climate Protection**
- Thermal power plants
- Desalination plants
- Renewable energy
- Climate protection
- Power transmission & distribution systems

**Transport & Structures**
- Airports
- Roads
- Railways
- Urban transport systems
- Tunnels & caverns
- Buildings & structures
- Alpine resorts
ILF Consulting Engineers
Renewable Energy

Energy & Climate Protection

- Thermal power plants
- Sea water desalination plants
- Renewable energy
  - Climate protection
  - Electric transmission and distribution systems

Hydropower
CSP
Photovoltaic
Wind
Energy Efficiency
Waste to Energy
Sheikh Mohammed Bin Rashid Solar Park, Dubai UAE
Sheikh Mohammed Bin Rashid Solar Park, Dubai UAE

Client: Dubai Electricity and Water Authority (DEWA)
Project: Study for 1000 MW CSP / PV solar park
Time frame: 2012 – 2013
Data: 1000 MW PV / CSP solar park
Services: • Conceptual design study
• Site investigations and surveys
• Environmental impact assessment
• Technology selection
• Plant design and optimization
• Economic analysis including LCOE comparison and development
• Implementation strategy
• Financing strategy (EPC vs. IPP)
Sheikh Mohammed Bin Rashid Solar Park – Phase I, UAE

Client: Dubai Electricity and Water Authority (DEWA)

Project: 13 MW PV power plant implementation

Time frame: 2012 – 2013

Data: 13 MW PV power plant,
PV module technology: cadmium telluride,
PV inverter concept: central inverter,
grid connection: 33 kV

Services:
• Owner’s engineer
• Tender design and EPC tendering
• Design vetting
• Site supervision
• Factory acceptance tests
• Commissioning and takeover
• Project management
• Maintenance guarantee (24 months)
Sheikh Mohammed Bin Rashid Solar Park – Phase II, UAE

Project: 200 MW Solar PV IPP Project
Owner: SHUAA Energy
Off-Taker: Dubai Electricity and Water Authority (DEWA)
EPC: TSK
Time frame: 2015 – 2017
Data: 260 MWp PV power plant,
PV module technology: cadmium telluride,
PV inverter concept: central inverter,
Grid connection: 400 kV

Services:
• Owner’s engineer
• Design vetting
• Site supervision
• Factory acceptance tests
• Project management
• Maintenance guarantee (24 months)
Photovoltaic
Large Scale Power Plants: Selected References

- PV/Diesel Hybrid Power Plant, UAE
Client: Dubai Electricity and Water Authority (DEWA)

Project: PV / Diesel hybrid power plant on an private island

Time frame: 2013 - 2015

Data: PV power plant: 0.8 MW (up to 60% penetration rate)
Diesel power plant: 4 MW (5 x 0.8MW)
MV Grid: 11 kV

Services:
• Energy demand analysis and future evolution
• Technical & financial feasibility study (PV, Wind and battery)
• Site assessment and selection, geotechnical surveys
• Conceptual design
• Economic & financial analysis (CAPEX, OPEX, LCOE, etc.)
• Owner´s engineer: tender design, design vetting, site supervision
Photovoltaic
Large Scale Power Plants: Selected References

- Solar PV Power Plant, Qatar
Photovoltaic
Large Scale Power Plants: Selected References

- **PV Power Plant, Qatar**

  **Client:** Qatar Petroleum (QP)
  **Project:** 2 MW Solar PV Power Plant
  **Time frame:** 2014
  **Data:** PV power plant: 2.0 MW
  1.0 MW Polycrystalline & 1.0 MW Thin Film PV Modules
  Central Inverter
  MV Grid: 33 kV
  **Services:**
  - Technical & financial feasibility study
  - Site assessment and selection, geotechnical surveys
  - Conceptual design
  - Economic & financial analysis (CAPEX, OPEX, LCOE, etc.)
  - Owner´s engineer: tender design
Photovoltaic

Large Scale Power Plants: Selected References

- Concentrating solar + PV + Wind power, Saudi Arabia
Client: Confidential, Saudi Arabia - Riyadh

Type of work: Renewable energy consultancy services, owners engineer


Data:
- CSP > 40 MW<sub>el</sub>
- Parabolic trough collector, Linear Fresnel, solar tower
- Heat transfer fluid: thermal oil or molten salt
- Storage: two-tank molten salt technology

PV
- Free-field fixed tilt systems between 10 - 50 MW
- Rooftop systems between 0.2 - 1 MW

Wind
- 10 turbines, total capacity 30 MW

PV/Battery/Diesel hybrid systems

Services:
- Site visit
- Conceptual design
- FEED: Front End Engineering Design
- Tendering
- Site supervision during construction and commissioning
- Capacity building
- Shadow engineering services

Photovoltaic
Large Scale Power Plants: Selected References

Concentrating solar + PV + Wind power, Saudi Arabia (2)
Wind

Wind Power Plants: Selected References

Wind Farm, Oman
Wind

Wind Power Plants: Selected References

Wind Farm, Oman

Client: Masdar, Abu Dhabi

Type of work: Dhofar Wind Power Plant, legislative and regulatory permitting

Time frame: 2014

Data: Masdar and the Rural Areas Electricity Company (RAECO) of Oman are working together in the development of a 50 MW Wind Farm in the Dhofar Region, southern Oman. The wind farm will be located in Harweel.

Services:
- Site visit
- Regulatory Authorities Identification
- License Application Process
- Preparation License
- Preparation Requirement for Authority
- Advise solution for OHL
- Problem solving about landing issues
Thank you for your attention!