GCC Interconnection Authority

The GCC Interconnection Grid

ME Power & Water Conference

Abu Dhabi, UAE

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March 2007

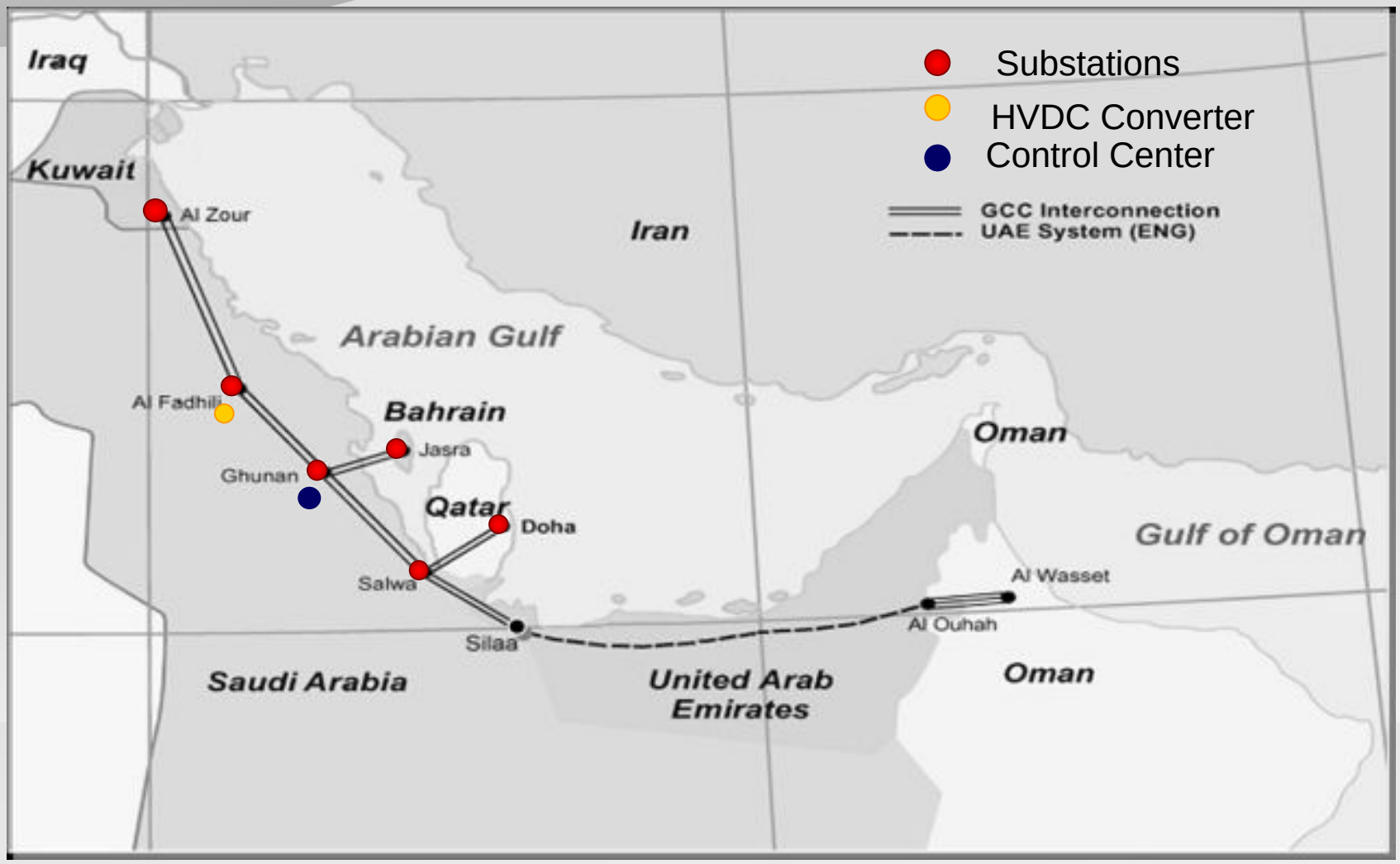
Background

- Gulf Cooperation Council (GCC) between Kuwait, Saudi Arabia, Bahrain, Qatar, United Arab Emirates and Oman formed in 1981
- Recognized benefits of interconnection of electricity grids of the member countries
- Initial study initiated in the mid-eighties
- Preliminary project definition study in 1990 confirmed technical, economic and financial feasibility, recommended formation of GCC Interconnection Authority
- GCCIA established in 2001 with headquarters in Dammam, KSA
- Project technical, economic and financial feasibility updated in 2003/04
- Countries decided to self-finance project in 2004
- Project tendered and awarded in 2005

Sharing of the costs of the Interconnection

	Phase I (%)	Phases I &III (%)
Kuwait	33.8	26.7
Saudi Arabia (ERB)	40.0	31.6
Bahrain	11.4	9.0
Qatar	14.8	11.7
UAE		15.4
Oman		5.6
Total	100.0	100.0

Geographical Map



Benefits of the Interconnection

- The GCC power grid will reduce high long-term investment costs in the construction of generation plants by reducing the level of reserves needed in each country
- Provides countries and/or regions an alternative source for operating reserves and support during emergencies (blackouts or unforeseen contingencies)
- Can provide diversity to the available sources for energy supply by increasing system reliability through the importation of different energy resources (Hydro, nuclear)
- Improve the economic efficiency of power systems and improve the security of power supply

Phase-I Project Status

Implementation Project Schedule

Update Technical and Economic Feasibility	2003 / 2004
Approval of Project Financing	May 2004
Issue of Tender Documents	February 2005
Tenders Received	June 2005
Tenders Evaluated and Recommendation for Award	September 2005
Contracts Awarded	November 2005
Project Operation	Early 2009

Project Status

- Contractor has built 74 Km of access roads
- Structure pads have been built for 159 towers
- Concreting of foundations have been performed at 48 sites

Project Status

- Completed the Submarine Cable Route Survey between Kingdoms of Bahrain and Saudi Arabia
- Geo-Technical study of the Land Cable in the Kingdom of Bahrain

Project Status

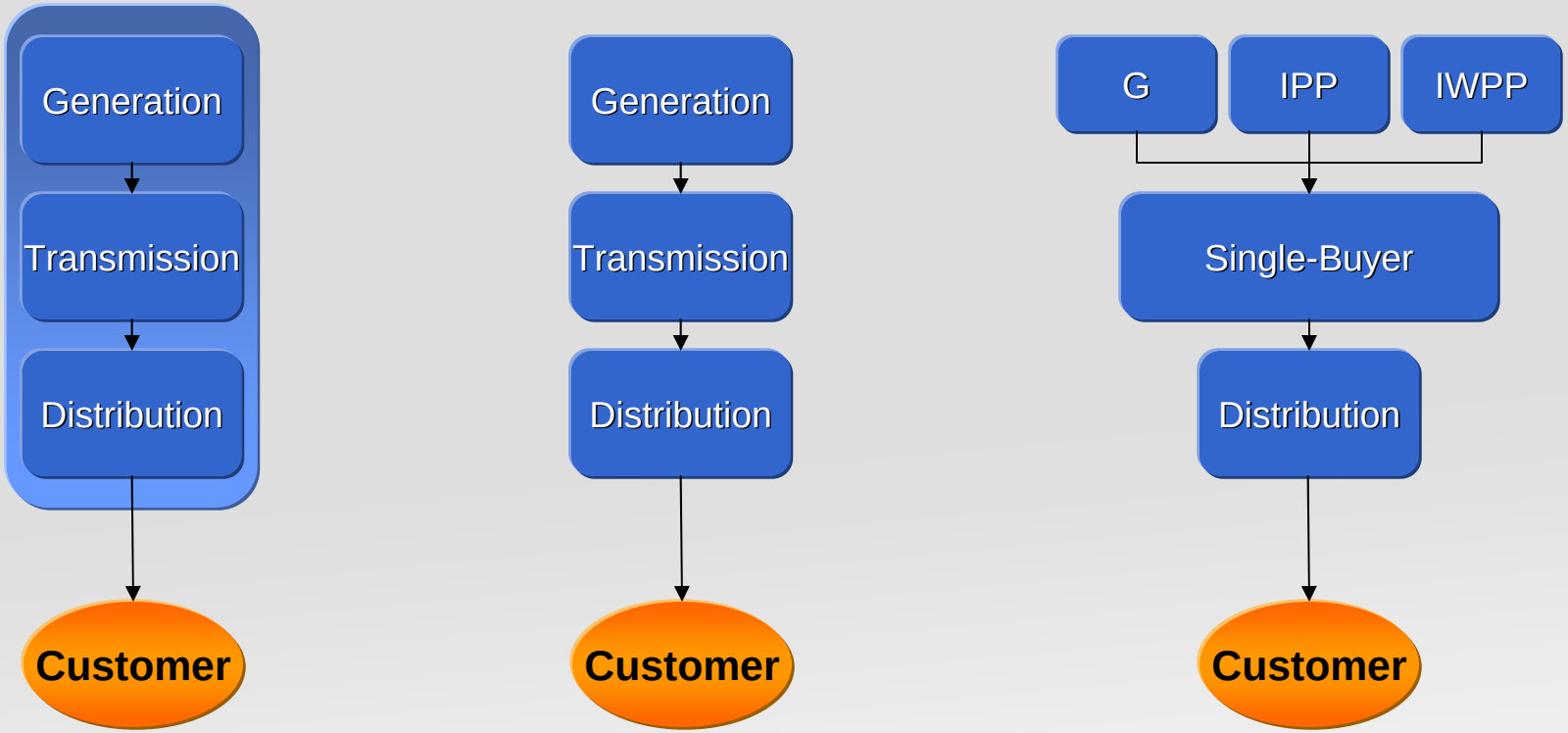
- Formwork, reinforcement & concrete pouring of GIS square footings and the application of emulsified asphalt at Al-Fadhili Substation
- Civil work surveying at the other Substations has also started

Energy Trading

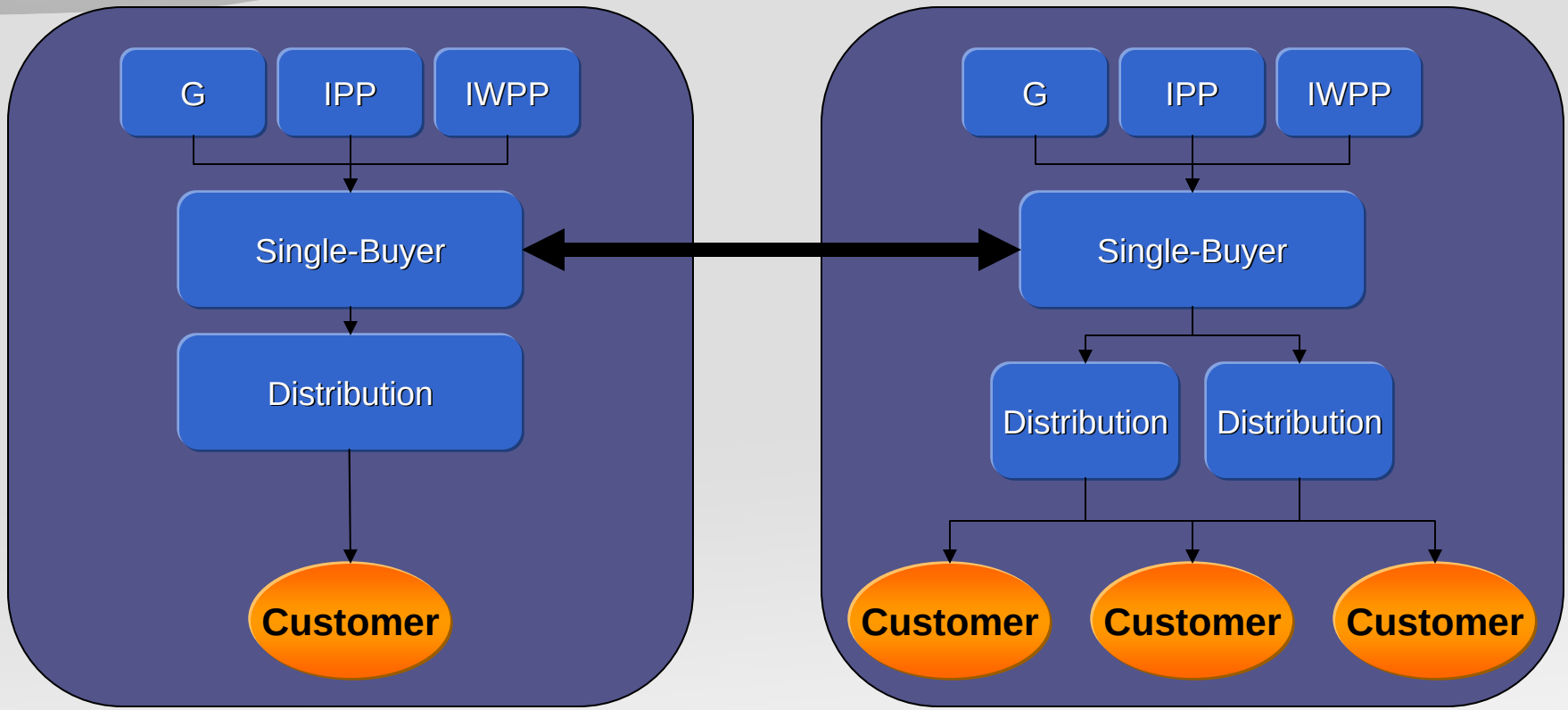
Development of the GCC Electricity Market

- By providing wheeling services to the power sectors in the GCC countries the interconnection will:
  - enhance cooperation between the member country's utilities;
  - Become a 'Launch-Pad' for energy trading thus leading way to establishing a common market in the region
- Development of the GCC electricity market is a step-by-step approach.
  - Allow competition at generation level (IPP's)
  - Establish vertical and/or horizontal separation to enhance competition
  - Establish open access to transmission to allow generators to sell to other countries and regions
  - Form a wholesale market

Development of the GCC Electricity Market



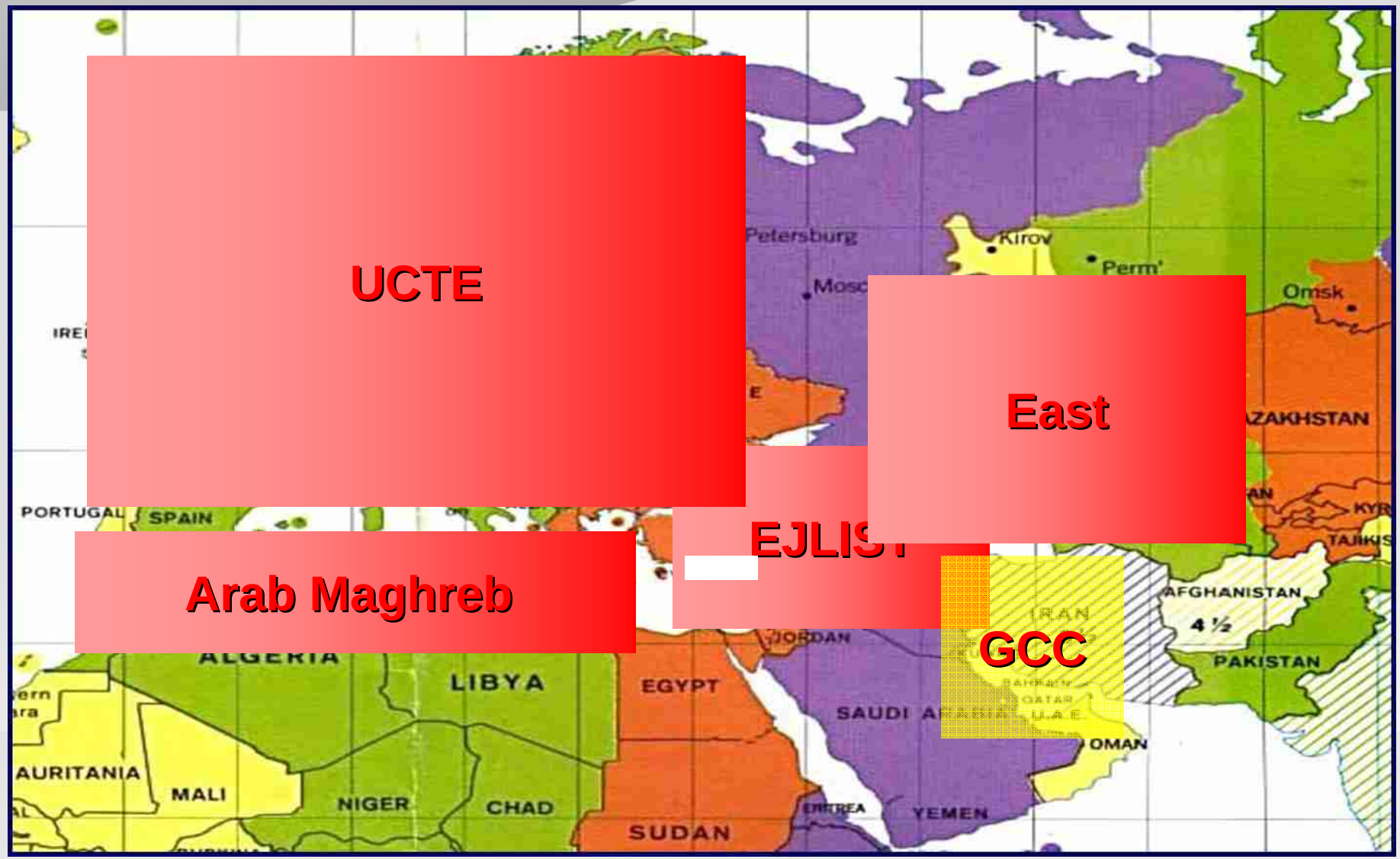
Development of the GCC Electricity Market



Benefits of the GCC Electricity Market

- Promote participation from local & external investors
- Encourage the development of projects with access to other markets
- Provides opportunity to establish power plants close to abundant resources (Gas, hydro, etc.)
- Act as an alternative solution to exporting of power by wheeling as opposed to exporting power by other means (i.e.) Gas pipeline
- Exchanging power with regions experiencing different peak demand periods

Opportunities for the GCC Electricity Market



Current Demands in the GCC Region

- Some of the GCC countries are expecting a shortage in serving their daily maximum demand from its own resources and power purchase agreements.

- Recently submitted requests for power from other neighbouring countries to fulfill their demands on a short-term (several months) and long term basis (15 years) starting from year 2009.

- The requested power to be supplied from neighbouring countries via the GCC interconnection ranges from 500MW to 600MW.

Opportunities for the Authority

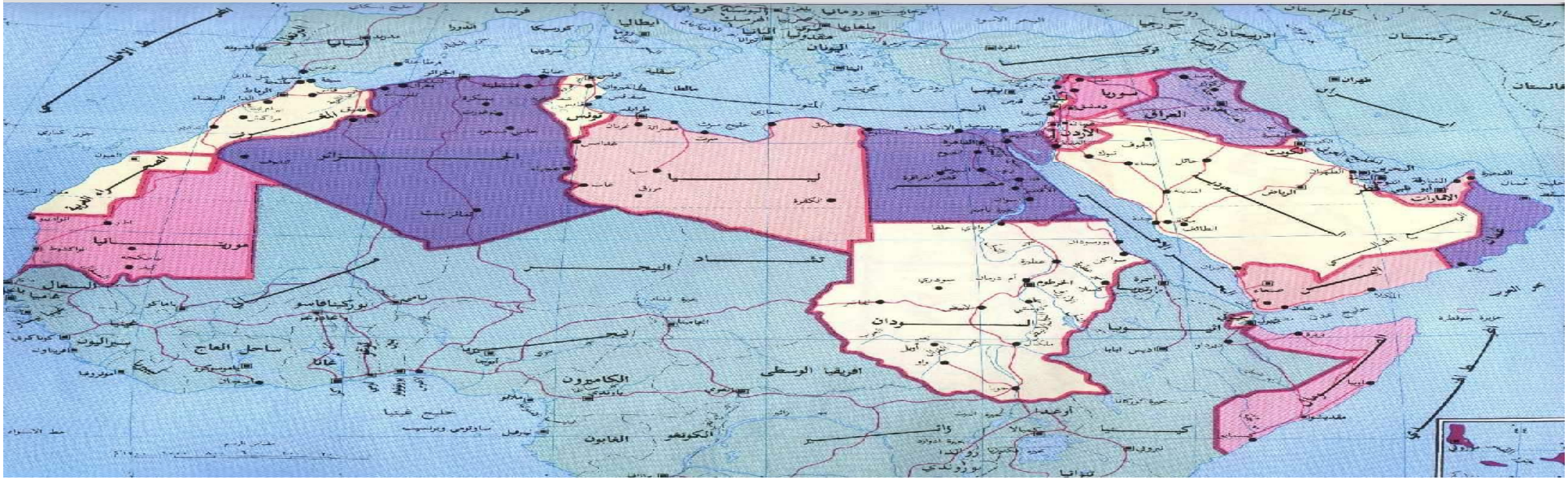
- Realizing the potential opportunities the power grid can provide to the region the Authority have recently engaged in utilizing the OPGW fibre optic cable which is part of the transmission line and land & submarine cable
- The cable consists of 48 fibres; in which 12 fibres will be reserved for electrical power uses and the remaining 36 fibres can be used for future applications
- Authority can lease out the fibres to one or many potential telecommunication companies
- Meetings were conducted between the Authority and the Telecommunication regulators in some of the GCC Countries to discuss laws pertaining to the telecommunication industry (i.e.) licenses, landing point rights, etc.

Pan-Arab Grid

Pan-Arab Grid

The Authority is currently seeking out other opportunities to fully make the most of its US$ billion plus interconnection asset:

1. By exporting power to neighboring power pools:
   - EJILST Grid (Egypt, Jordan, Iraq, Lebanon, Syria and Turkey)
   - Pan-Arab Grid and henceforth the European Grid
2. Promoting the private utilities sector in the GCC region to interconnect to the GCC Grid.

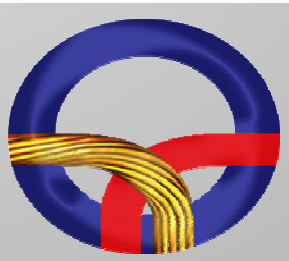


Advantages of Pan-Arab Grid

- The GCC Grid will be a significant part of the Pan-Arab Grid.
- The great expansion of Arab electrical interconnection requires every state to focus on completing and enhancing its internal grid, so as to enhance the capability of the Pan-Arab Grid.
- Promotes and encourages the private sector to participate in Electrical Projects in the GCC and Arab Countries, such as power production and transmission projects, where there are good opportunities for investors.
- The GCC Grid is a fundamental step leading to the liberalization of a Regional GCC and Pan-Arab Power Market.
- Enhancing the economies of the Arab World nations.

Conclusions

- As a ‘Back-Bone’ the GCC Grid will be a fundamental step leading to a regional GCC electrical energy market
- Provide vast opportunity for companies in the telecommunication industry
- It will promote and encourage the private sector to participate in Electrical Projects in the GCC region – engaging in trade
- Become part of a global interconnection:
  - Pan-Arab Grid (EJLIST & Arab Maghreb Grids)
  - Mediterranean ‘Ring’ Grid (UCTE)



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