

Experience gained for EETC from Private Sector Participation in the RE Projects

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Strategy :

- **The Ministry of Electricity and RE Energy with the endorsement from the Cabinet adapted a power sector development strategy which includes a large scale projects from the renewable energy resources .**
- **It is targeted of having 12% of all generated electricity from wind power by the year 2020 and 3500 MW from Solar Energy by 2027.**

- **Private Sector is our partner towards achieving our goal increasing the share of renewable energy in our generation mix with participation about 67%.**
- **Egypt has implemented key steps to achieve its renewable energy strategy such as;**

- **A five-year tariff reform program. Consequently, the price of the electricity generated from renewable energy will be increased annually at the same rate as wholesale electricity through 2019.**
- **A legal framework has been established that allows NREA to set up RE companies by itself or in partnership with the private sector to implement RE generation and O&M projects.**

- **In December 2014, Egypt's new Renewable Energy Law encourages the generation of electricity from RE sources via four development schemes ;**
- **Governmental Projects:**
Via EPC contracts NREA targets installation of 1,890 MW from wind energy and 80 MW from grid connected PV power plants in the few coming years.

❑ Competitive Bids:

The Egyptian Electricity Transmission Company (EETC) is issuing tenders to private-sector local , international companies & consortiums to build, own and operate (BOO) RE facilities and sell the generated electricity to EETC at agreed- competitive prices via Power Purchase Agreement.

□ Third Party Access IPP (Independent Power Producer):

Under this scheme the investors are permitted to sell electricity generated from projects directly to consumers using the national grid for distribution and transmission subjected to a wheeling charge & via network connection contracts.

□ Feed in Tariff (FIT):

The Egyptian government has announced an interim target for the first regulatory period (2015-2017) of 4,300 MW of both solar and wind energy, broken out as follows;

- 300 MW for small solar PV systems-roof tops (less than 500 KW).**
- 2,000 MW of medium and large size of PV solar plants.**
- 2,000 MW of medium and large size of wind plants.**

- ❑ **The New investment law No.17 was issued in March 2015, including some incentives for the developers.**

Part I : BOO Projects

1- Development of 250MW BOO Wind Project in Gulf of Suez.

- **RFPQ issued in May 2009.**
- **34 offers received in August 2009 from the international consortiums.**
- **Short list of 10 bidders concluded in November 2009 , the shortlist reached to 7 bidders in 2013.**

- **In January 2011 , a Site Measurement Framework Agreement was signed between EETC as an agent and the short listed bidders.**
- **In July 2010 Garrad Hassan was contracted to do the Joint Site Wind Measurements which started in November 2010.**
- **In March 2011 the company Map was contracted to do the Joint Site Topographical Studies .**
- **In November 2011 consultant Hamza was contracted to conduct the geotechnical studies.**

- **In March 2011 Fichtner was contracted for the Project consultancy Service(Financed by the WB).**
- **The RFP including the PPA, interconnection and usufruct agreements was drafted by the Consultant Fichtner in coordination with EETC.**
- **Capacity Building was done by Fichtner through different missions (Technical- Financial-Legal)**

- **The RFP draft was issued in April 2013**
- **In Feb 2014 , EETC obtained the Sovereign Guarantee (MOF) For the Project.**
- **The bid submission date was on 19 April 2015.**
- **Four consortiums submitted their proposals with a very competitive price for KWh.**
- **EETC now in the phase of negotiation with the successful bidder.**

New wind Tenders :

- **RFPQ was announced on 11 August 2015 for the development of 250 MW BOO wind project in the west of Nile.**

2- Development of (10 × 20MW) BOO Solar PV Power Project(s) at Kom-Ombo in Aswan Governorate

- RFPQ was issued on 28/7/2013.**
- Pre-RFPQ Meeting on 13/11/2013.**
- RFPQ Bid Submission on 4/12/2013.**
- Short-list Announcement from 15 bidders on 14/1/2014.**
- Kick-Off Meeting and Site Visit on 19-20/2/2014.**

- **Signing of the Framework Agreement for the project between EETC & shortlist in June 2014.**
- **A joint measurement campaign will be conducted for solar resources assessment , Topographical study and Geotechnical study by the shortlisted bidders.**
- **The shortlisted bidders will assign consultants to conduct the required studies for the project site.**

New solar Tenders :

- **RFPQ was announced on 11 August 2015 for development of 200 MW BOO PV project in the west of Nile.**
- **RFPQ was announced on 11 August 2015 for development of 50 MW BOO CSP project in the west of Nile.**

Lessons learned

- **A gained experience in dealing with the private sector projects & Investors.**
- **Diplomatic skills to get the consensus needed for quick needed Decisions.**
- **Experience gained from International Entities like WB and EIB.**
- **Cooperation with NREA, EgyptERA in preparing the required agreements.**
- **Experience from dealing with different local entities such as MOF,MOIC....**

Part II : Feed in Tariff

The merits of Feed in Tariffs

- **No other mechanism has promoted such an explosive growth in renewable energy in the world.**
- **Most countries leading the deployment of renewables have adopted FiT projects.**
- **Massive deployment has created economies of scale and contributed to technology development, learning curve, and price decline**

FIT Program

- **In Sep. 2014, The Cabinet has approved the Feed-in Tariff mechanism for PV Solar & wind projects with capacity less than 50 MW after its regulations has been finalized from EgyptERA.**
- **The first regulatory period from the FIT program aimed to reach 2300 MW (PV) (2000 MW by the developers ranging from 500KW up to 50MW + 300 MW for residential roof tops below 500KW) and 2000 MW(wind) ranging from 20 MW up to 50 MW.**

- **The value of the tariff will be revisited as either the target is achieved or after the two years regulatory period , which happens first.**
- **The electricity transmission company (EETC) or distribution companies are committed to purchase the produced electricity from RE power plants at the prices announced by the Cabinet through Power Purchase Agreements (PPA) for 25 years for the PV projects, and 20 years for the wind projects.**

FIT Program Status

- **The central unit for FIT has been established in Oct 2014.**
- **The Announcement for Pre- Qualification was issued on 28/10/2014.**
- **The dead line for the developers to submit their proposal for PQ was on 26/11/2014.**
- **A huge No. of applicants for wind & Solar energy 187 proposals (about 11 GW for PV & 4 GW for wind) were submitted.**

- **On the 6th of January, about 140 qualified consortiums were announced with total capacity exceeds 3 GW for PV & about 1.8 GW for wind.**
- **The Qualification letters were sent to the developers in Jan 2015.**
- **The qualified developers were asked from FIT unit to submit their SPV status.**
- **The SPV regulations were issued from EgyptERA & the regulations for availing lands were issued from NREA.**

- **Around 50 consortiums (SPV) have signed MOU's with NREA to avail the lands.**
- **Around 15 project companies got the interim license from EgyptERA.**
- **EETC contracted the international consultant Fichtner /Freehills for the project consultancy services.**
- **The consultant drafted the security package for the project agreements with the coordination of EETC, NREA, EgyptERA as follows;**

- **Cost Sharing Agreement.**
- **Power Purchase Agreement.**
- **Network Connection Contract.**
- **Usufruct Agreement.**
- **PPA Direct Deed (MOF Guarantee).**

- **The agreements package draft was available for the qualified developers last April and their comments and feedback were submitted.**

- **The consultant Fichtner/Freehills concluded most of the developers and lenders comments in the final version of the agreements to be issued to the developers after the approval of the stakeholders.**

Lesson Learned

- **It is an ambitious program .**
- **It is a learning curve process.**
- **Dealing with this no. of proposals and consortiums is a value added.**
- **Contribution in preparing the different agreements for the program such as PPA,connection agreement,Usufruct agreement,.....**
- **Cooperation with many entities such as NREA, Egyptera, MOF,.....**

Evacuation of Wind Power :

- **After Announcement of the renewable Strategy in 2008, Studies were done to select the suitable plan to evacuate this large amount of wind power to the grid.**
- **EETC has studied the evacuation of 3000 MW wind power through the 500 KV transmission line (Gulf of Suez–Samalut) with approx. length of 280 KM which financed by the WB & it is under construction.**
- **The Gulf of Suez 500/220 KV S/S which financed by the European Union & it is under construction.**
- **The 2000 MW of FIT program will be connected to this S/S through four 22/220 S/S's.**

- **The international consultant (Kema) was contracted to do the operational study for the control center to deal with the large amount wind generation as follows;**
- **Develop and design wind forecasting tools (and incentives) to integrate wind energy plants into the grid.**
- **Design a real time system to be integrated / interfaced with the upgraded SCADA / EMS system and future MOS system of the National Control Center (NCC) in order to control and monitor wind generation.**

- **Another Danish consultant (Grontmij) contracted with EETC in Oct 2014 to study the impact of the large scale of wind power in Seuz of Gulf & East, West Nile on the grid.**
- **As wind Power differs from the traditional power generation sources because of its intermittent varying nature.**
- **Wind Power imposes many technical requirements and challenges of different aspects.**

- **The fast growing penetration of the WP within the existing grids has to be faced by adding new equipment and technologies to adapt the grid capabilities.**
- **New Grid Code requirements are necessary. New philosophy and tools for the protection and control strategy of the grids.**

Evacuation of the solar PV power :

- **EETC has studied to evacuate the solar PV FIT projects by connecting them via 22 kv cables to four 22/220 S/S's in Benban (around 1800MW) & around 200 MW in Zaafarana.**
- **The cost sharing deed which will be signed between EETC,NREA & the qualified developers will facilitate the interconnection from the generation plants to the EETC grid including the roads which belong to NREA's lands against payments from the developers.**
- **The qualified developers who have their private lands , EETC will study the interconnection to the grid case by case according their lands locations on their expenses.**

Grid Codes :

- **Transmission grid code was issued after the approval of EETC & EgyptERA in 2013.**
- **The wind grid code was raised due to the fact of the high amount of wind power targeted and the draft was prepared within Fichtner Contract and approved by EETC and EgyptERA in June 2013.**
- **The solar code draft for medium & high voltages will be ready by October 2015 , the first draft prepared by the consultant , Mercados)via a grant from the EBRD.**

Thanks for your attention