

ENABLING CONDITIONS FOR EE/RE BASED EMPLOYMENT AND VALUE CREATION EGYPT

Mohamed Salah ElSobki (Jr)

Executive Chairman

New and Renewable Energy Authority (NREA)

Ministry of Electricity and Renewable Energy (MoE&RE)

EE and RE as *SAVIORS*

- High resources (multiple EE resources, Wind, Solar, Biomass,)
- Short development durations
- Mature technologies and declining investments
- Limited O&M
- Accepted environmentally (no fossil fuels, waste to energy)

EE and RE as *SAVIORS*

- High resources (multiple sources, Wind, Solar, Biomass, ...)
- Short development time
- Mature technology
- Currently 1.7% from the capacity & 0.8% from the electric energy.
- Targeting 20% of the electricity generation by year 2022
- ... (no fossil energy)

EE & RE PLANS

- EE to contribute by **8%** reduction of needs by year 2022 equivalent to **20%** of current usage).
- RE contribution to electric energy mix by:
 - **20%** (2022)
 - **30-40%** (2035)
 - **65%** (2050)

RENEWABLE ENERGY DEVELOPMENT SCHEMES

Framework for RE Development Mechanisms

**Competitive
Bidding**

**Merchant
IPP since 2012**

**Fit/Quota
since 2014**

**New & Renewable
Energy Authority (NERA)
(EPC contracts) since 1999**

**Transmission
(BOO) since 2009**

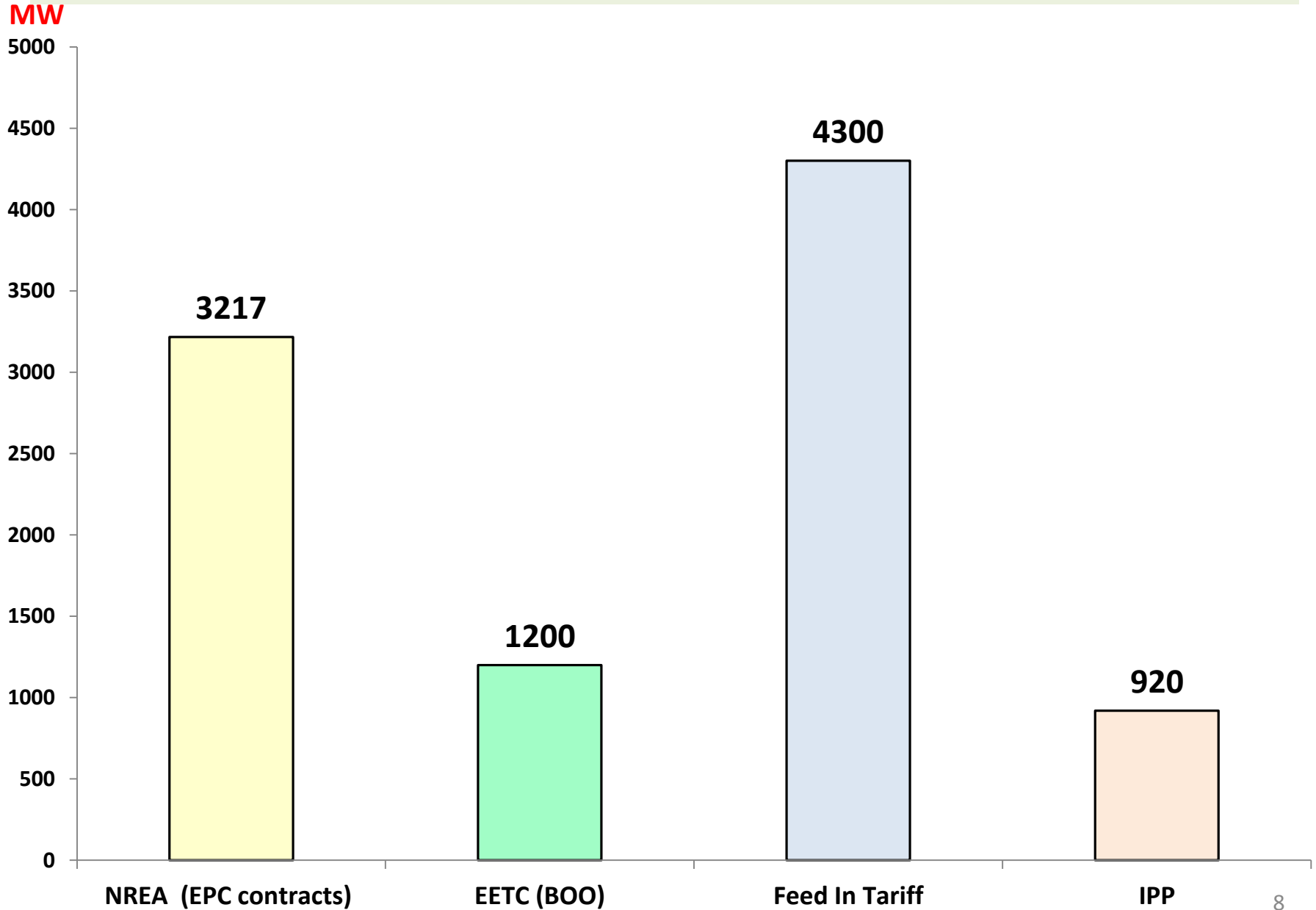
Renewable Energy Plan until 2022

Plant Name									
	MW	2015	2016	2017	2018	2019	2020	2021	2022
Existing Installed Capacities	890 (750 Wind+ 140 CSP) + 2800 Hydro								
Wind Coop. with Italgen				120		200			
Wind Gabal El Zayt (Japan)				220					
Wind Coop. Spanish Gov.				120					
Wind KfW, EIB, AFD, EU					200				
Wind Masdar& NREA					200				
Wind West Nile (Japan)						200			
Wind AFD & KfW						200			
WIND BOO G.Suez - 1				250					
Wind BOO West Nile – 1a						250			
Wind BOO West Nile – 1b							250		
Wind Six projects (6x100MW)							600		6

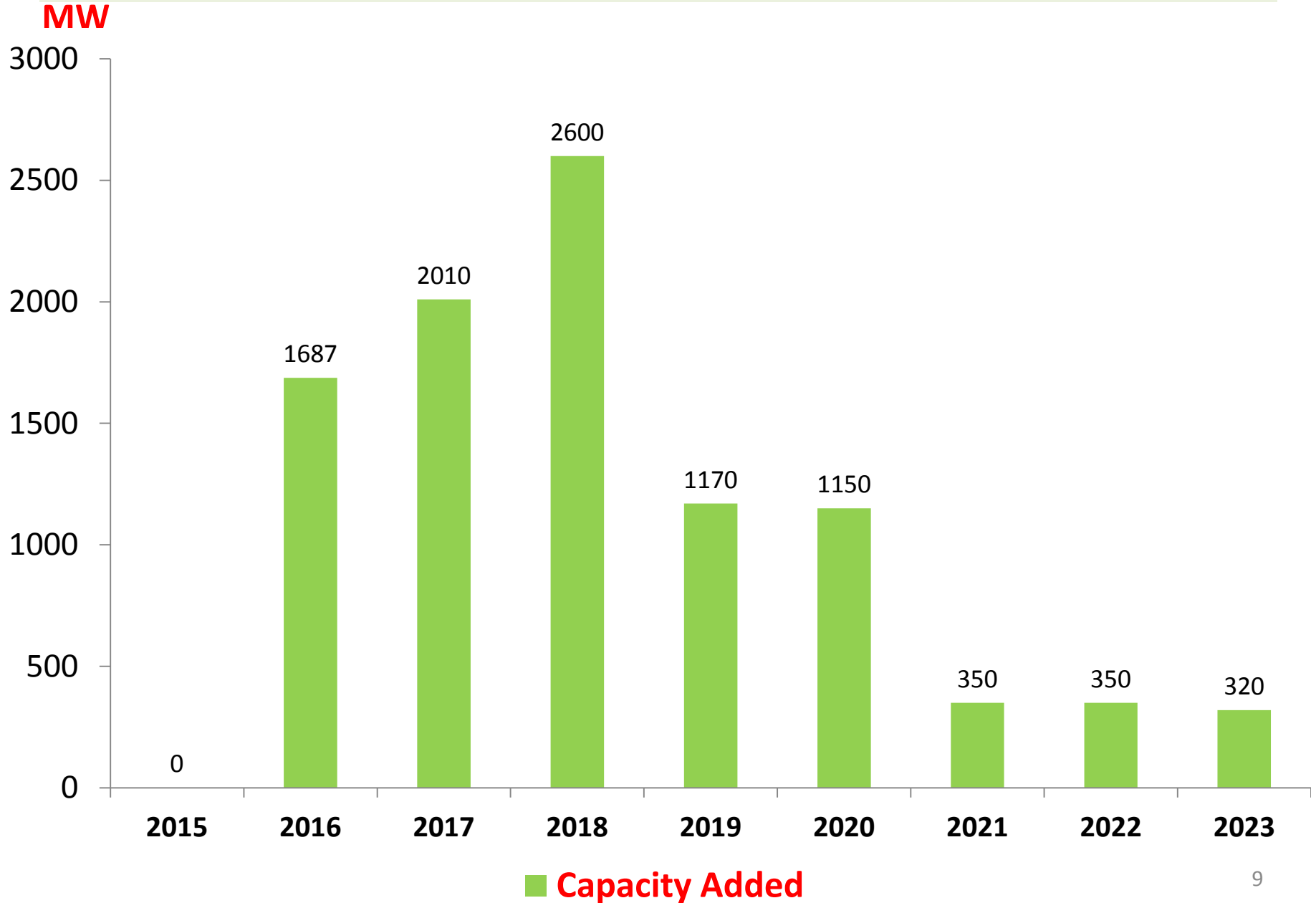
Renewable Energy Plan until 2022(Cont.)

Plant Name	MW	2015	2016	2017	2018	2019	2020	2021	2022	2023
PV Hurghada						20				
PV Kom Ombo				20						
PV-off grid (NREA-Masdar)			37							
EETC PVs				200						
EETC PVs					200					
EETC CSP						50				
FiT - Wind				250	1750					
FiT - PV			1500	500						
FiT - Rooftop			150	150						
Siemens - Wind				180	250	250	300	350	350	320
Sub-Total		0	1687	2010	2600	1170	1150	350	350	320
Total (without Hydro)						9637				
Total (with Hydro)						12307				

Renewable Energy Plan until 2022(Cont.)



Renewable Energy Plan until 2022(Cont.)



Renewable Energy Plan until 2022(Cont.)

Development Mechanisms	Capacity (MW)	Investment Cost (Million US\$)
NREA (EPC contracts)	3217	4200
EETC (BOO)	1200	1650
Feed In Tariff	4300	6450
IPP	920	1200
Total	9637	13500

Environmental Impacts

- The expected electricity generation about **49 TWh/year** by 2022/2023 (including hydro) .
- Fuel Saving about **9.7 million TOE/year** .
- CO2 emission reduction **25.3 TCO2/year**

Socio-Economic Effects

Socio-economic effects can be measured along the different segments of the value chain, including :

- project planning,
- manufacturing,
- installation,
- grid connection,
- operation and maintenance
- decommissioning.

Local Manufacturing (1-3)

- Egypt's key strengths for EE and RE industries development are:
 - Government's commitment and support,
 - Availability of raw materials in the country,
 - Cost of energy is approaching real cost,
 - Relevant technological,

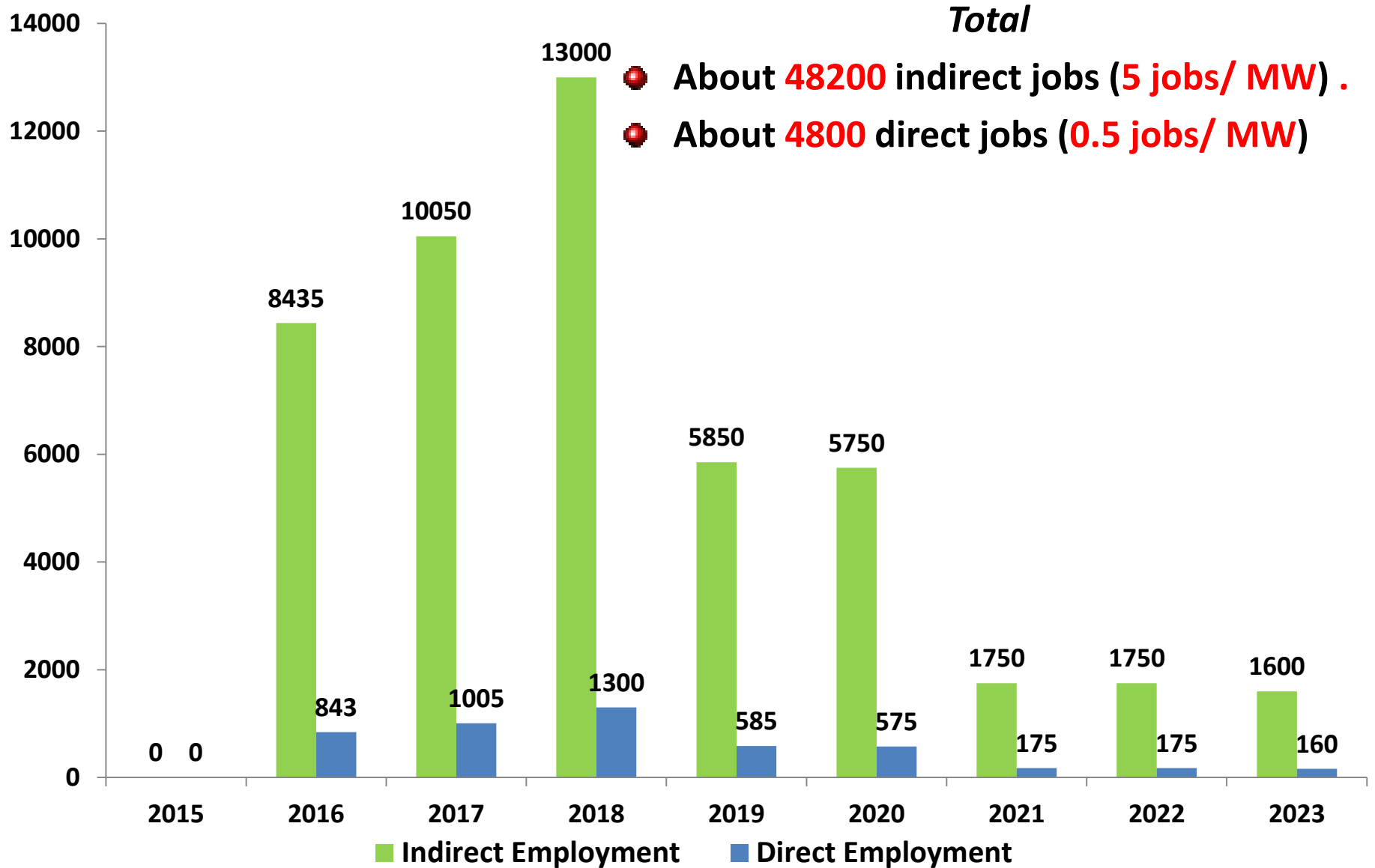
Local Manufacturing (2-3)

- Egypt's key strengths for EE and RE industries development are:
 - Manufacturing ability,
 - Ease of getting credit (financial risk competitiveness parameter),
 - qualified labor force available for: engineering, technical and management Knowledge and base capacities exist, but specifics for installation and maintenance shall be built.

Local Manufacturing (local content)

- local content in the existing wind farm reached:
 - 25-30% (towers, cables, transformers, civil & electrical works)
 - reached to 50% (the solar portion).
- preferential procurement
- New factory for blade manufacturing is under implementation by Siemens Company and will be operated in August. 2017.
- A number of PV modules Assembly Factories

Jobs Creation



Thank you for your attention

Chairperson@nrea.gov.eg