

Egypt's Renewable Energy

Mohamed Salah ElSobki (Jr)

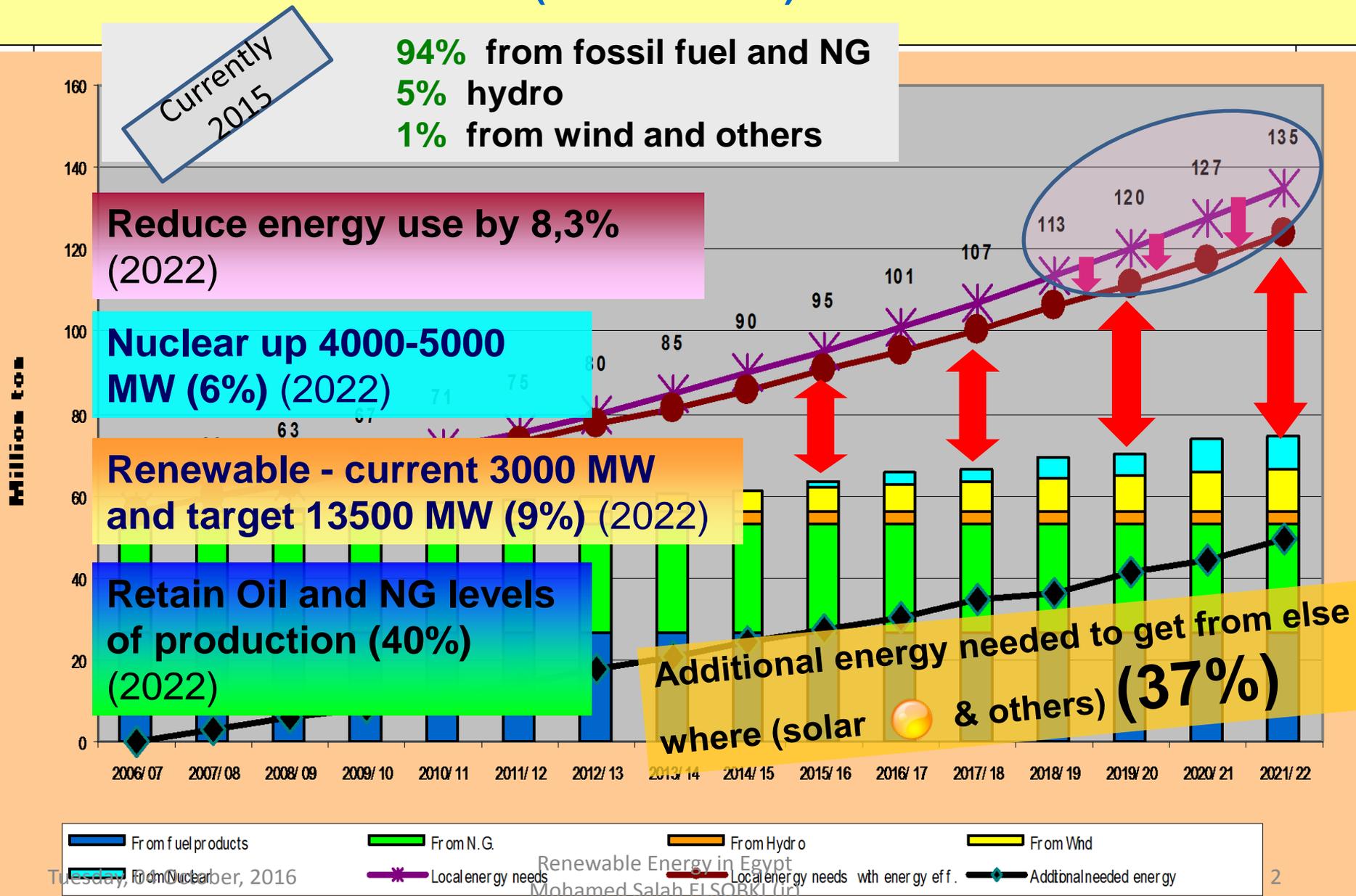
Executive Chairman

New and Renewable Energy Authority (NREA)

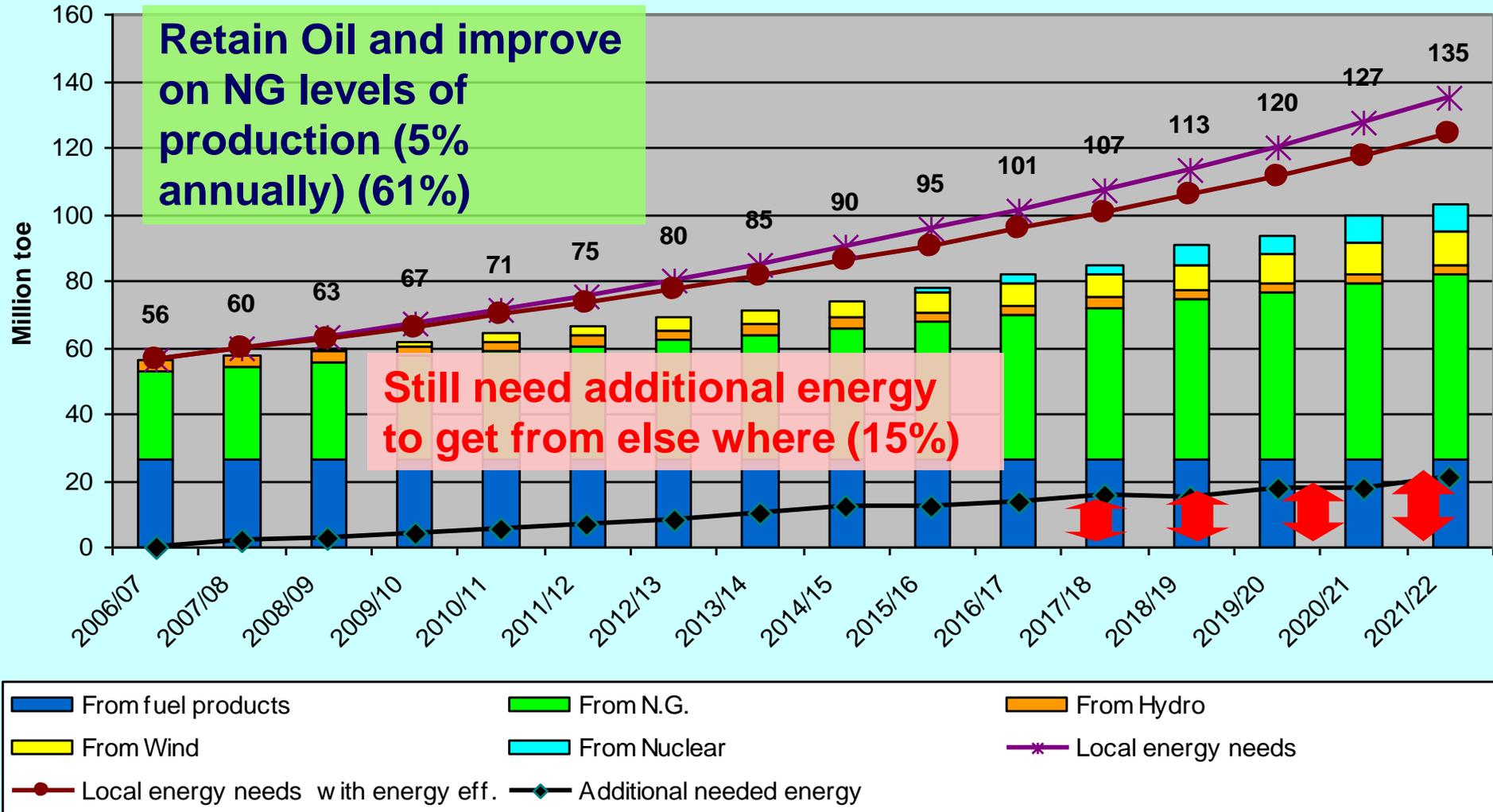
Ministry of Electricity and Renewable Energy (MoE&RE)

April, 14th , 2016

Expected / Targeted Future Energy Status **up 2022** (conservative)



Expected / Targeted Future Energy Status up 2022 (ambitious)



Generation Plan by 2022

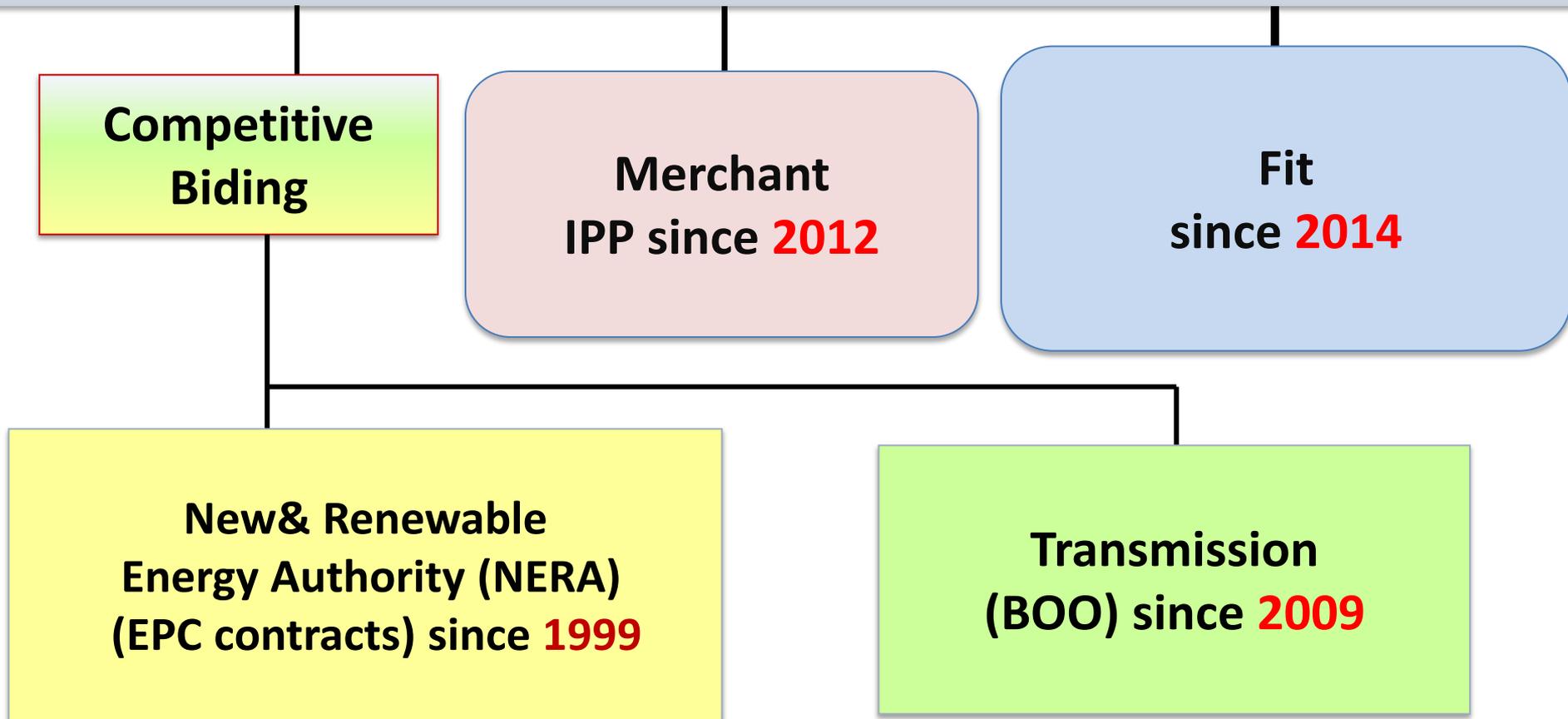
The Egyptian RE strategy is targeting 20% of the electricity generation by year 2022 as follows:-

Source	Capacity (MW)	Energy (TWh) & %
Wind	7110	30.6 (12%)
Solar	2870	2.2 (2%)
Hydro	2800	14 (6%)

**What are the different mechanisms used
for renewable energy contracts?
What opportunities do they open for
smaller and larger projects?**

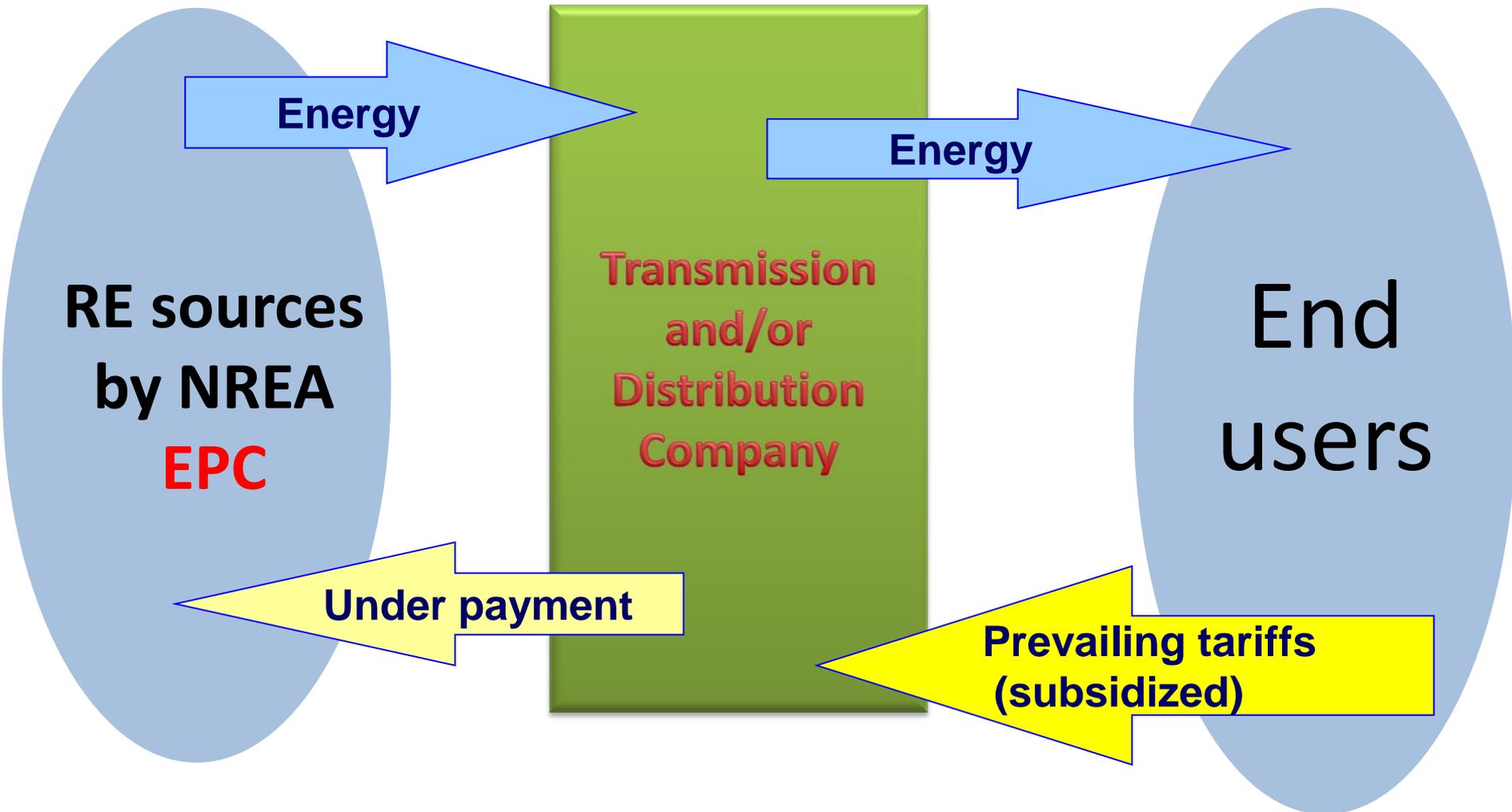
RENEWABLE ENERGY DEVELOPMENT SCHEMES

RE Development Mechanisms (Current & law 203 year 2014)



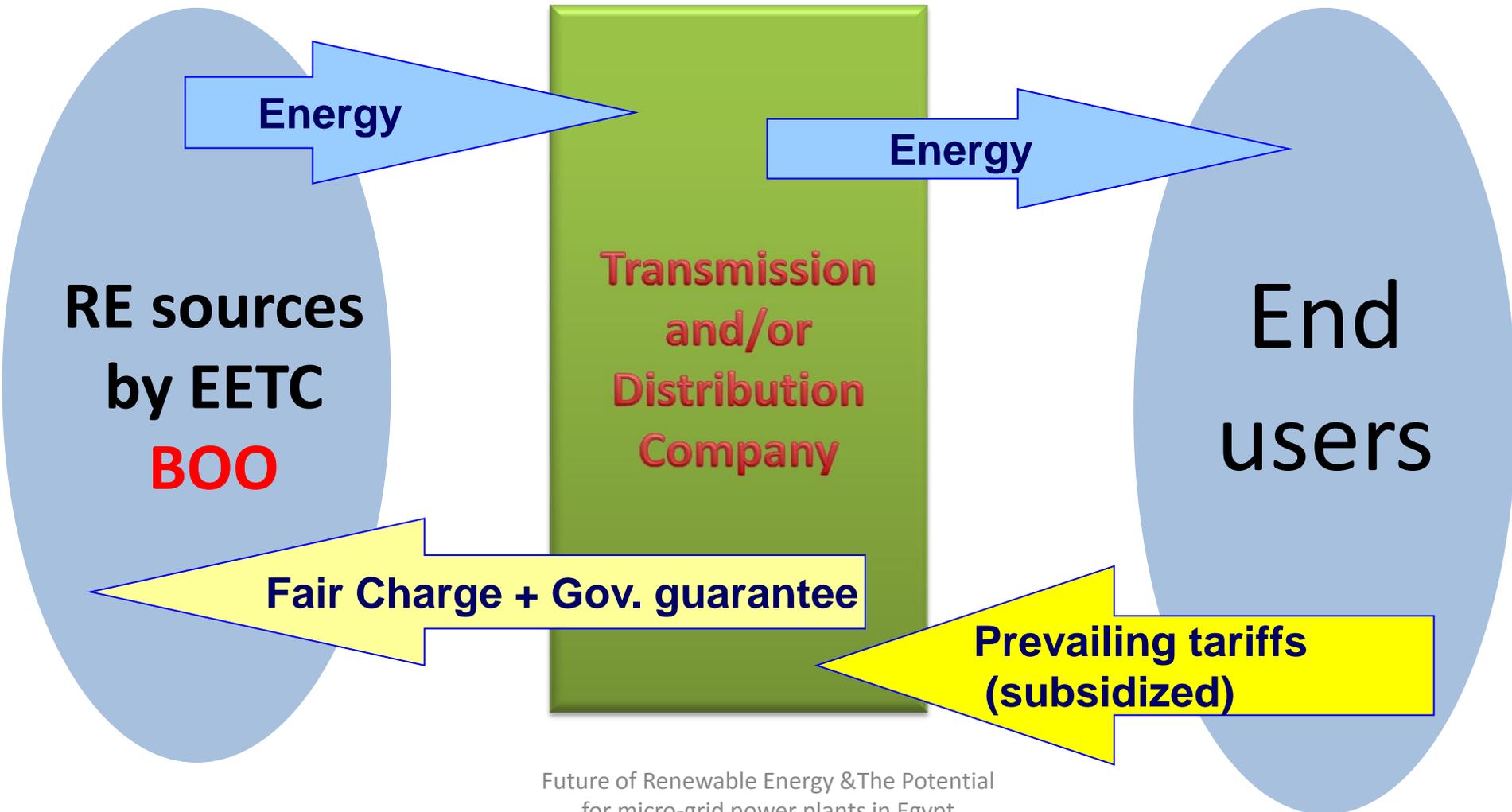
مناقصات تنافسية على مستوى الإنتاج

Competitive bidding on the supply side



مناقصات تنافسية على مستوى الإنتاج

Competitive bidding on the supply side



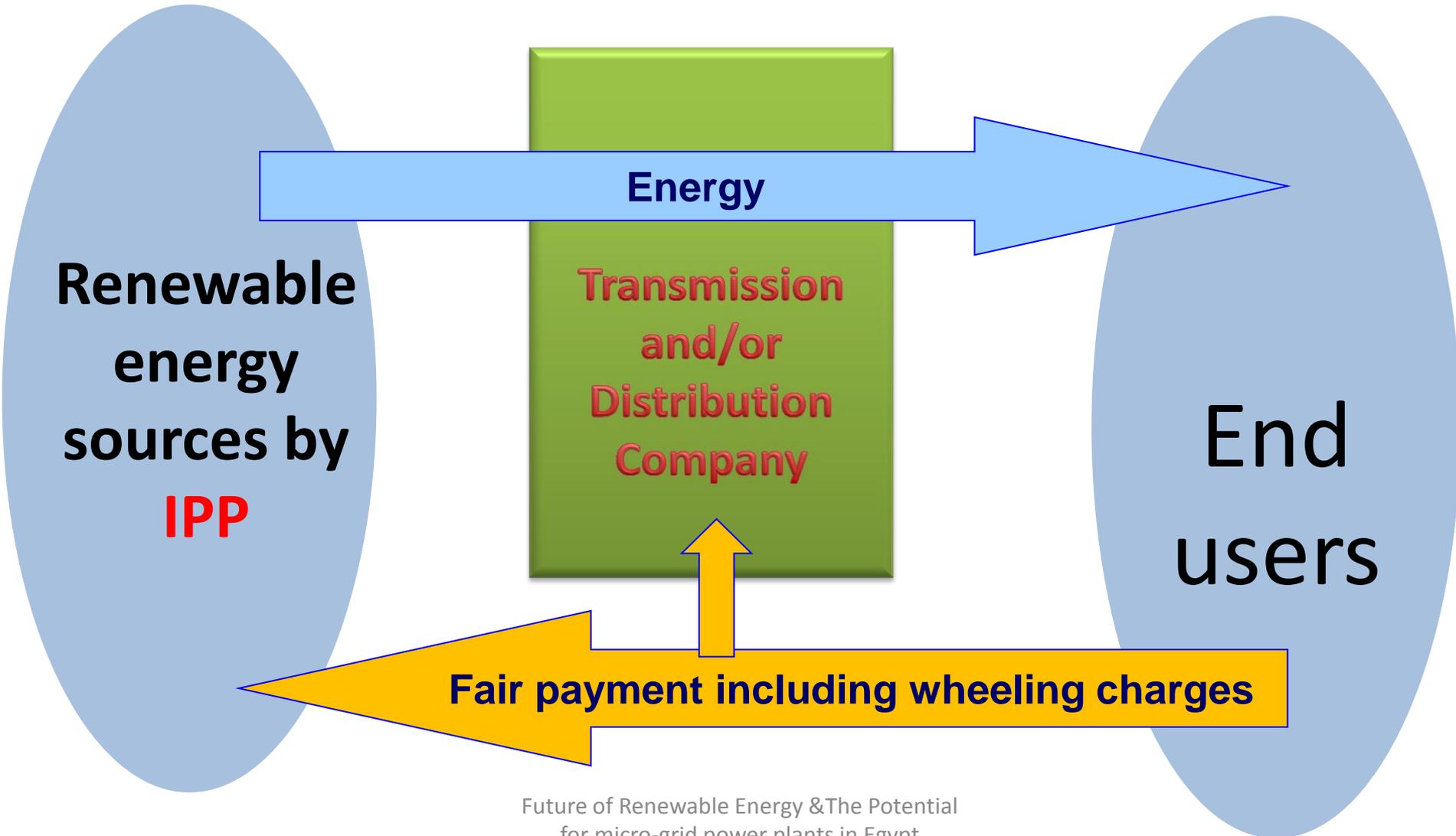
Renewable Energy Plan until 2022(Cont.)

EETC (BOO) Mechanism

Plant Name	MW	2015	2016	2017	2018	2019	2020	2021	2022	2023
WIND BOO Suez Gulf				250						
Wind BOO West Nile – 1						250				
Wind BOO West Nile – 2							250			
EETC PVs				200						
EETC PVs					200					
EETC CSP						50				
Total						1200				

الاتفاقيات الثنائية

Bilateral agreements (merchant scheme)



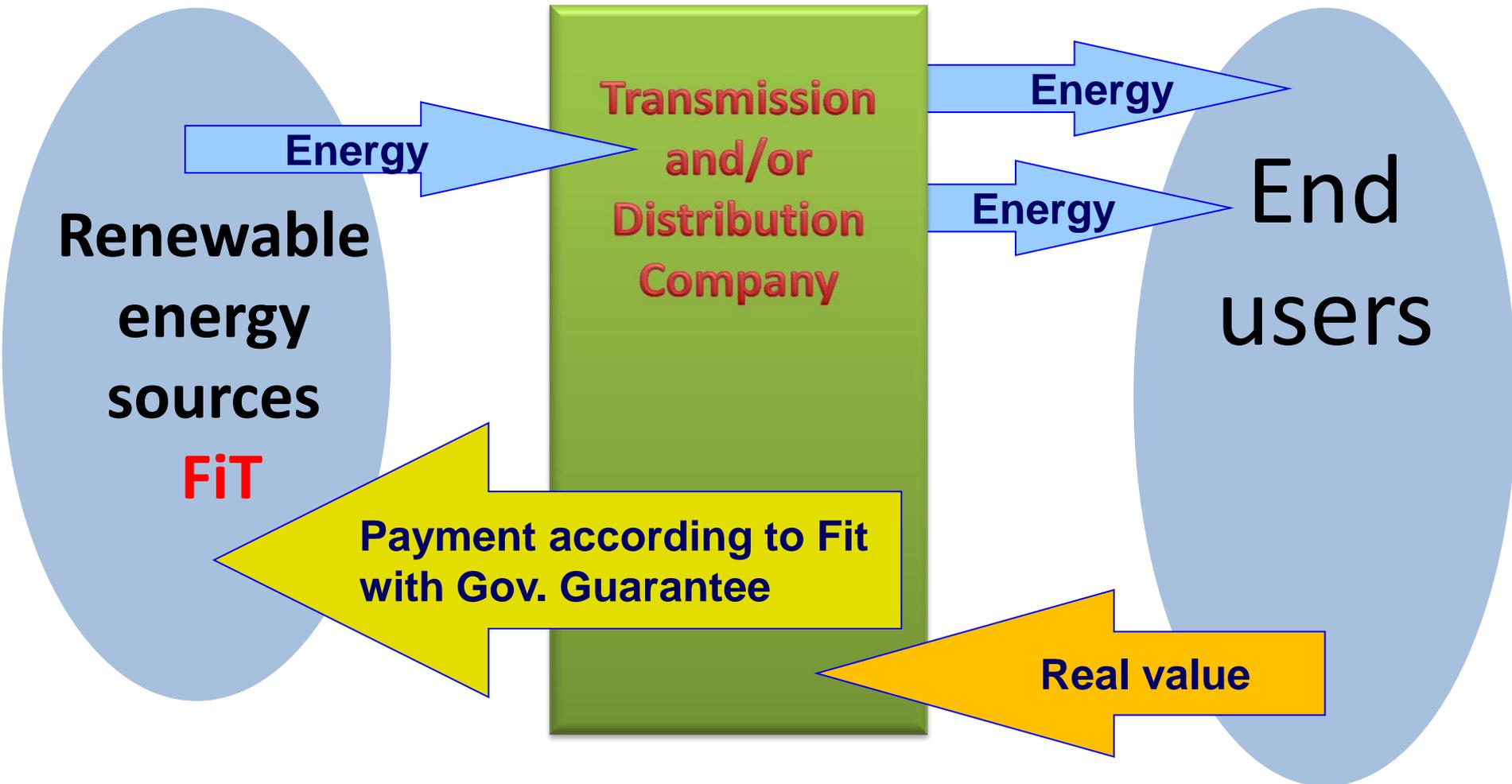
Renewable Energy Plan until 2022(Cont.)

IPP Mechanism

Plant Name	MW	2015	2016	2017	2018	2019	2020	2021	2022	2023
Wind Coop. with Italgas				120		200				
Wind Six projects (6x100MW)							600			
Total						920				

Feed in Tariff

تعريف التغذية

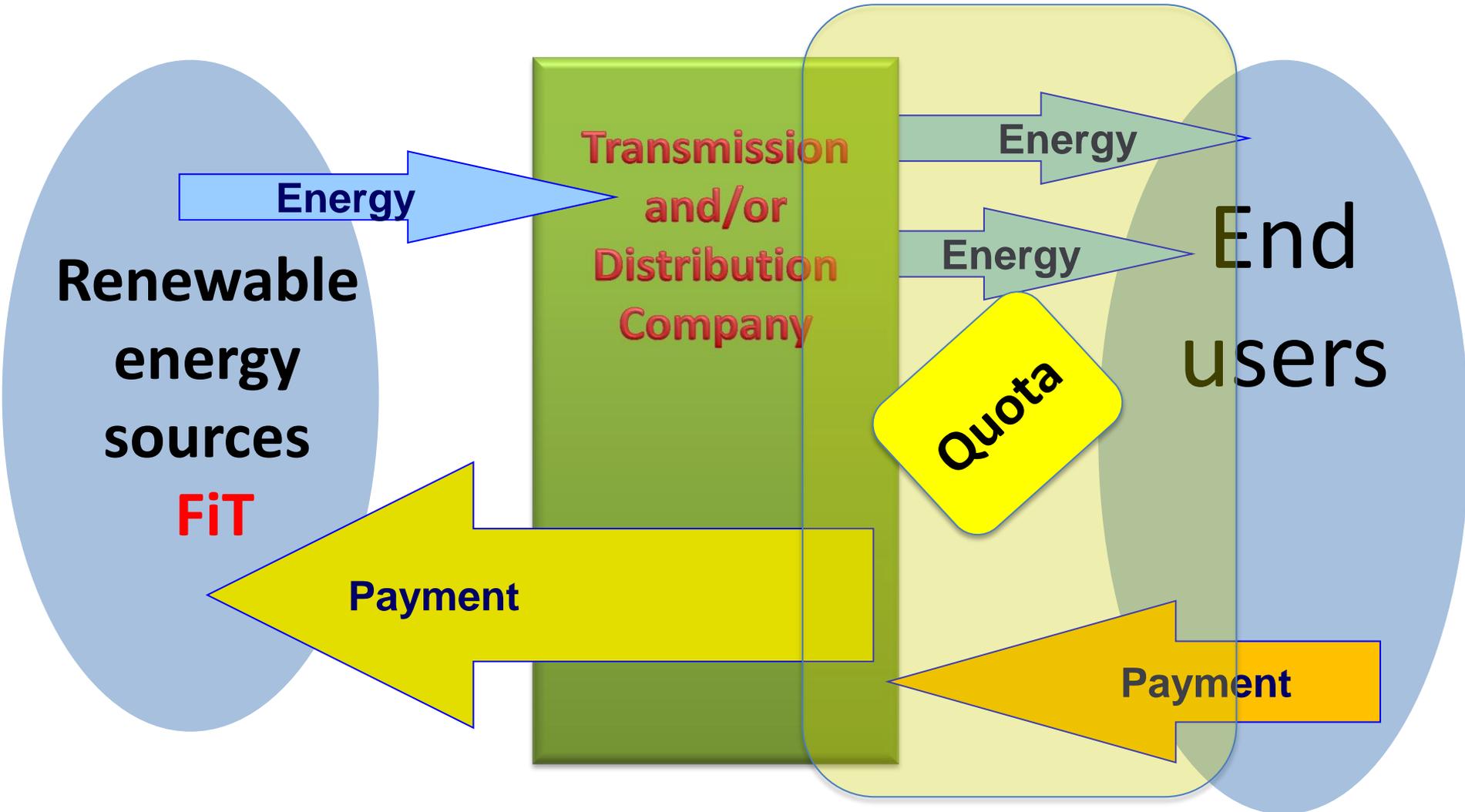


Renewable Energy Plan until 2022(Cont.)

Feed In Tariff Mechanism

Plant Name	MW	2015	2016	2017	2018	2019	2020	2021	2022	2023
FiT - Wind				250	1750					
FiT - PV			1500	500						
FiT - Rooftop			150	150						
Total						4300				

Quota

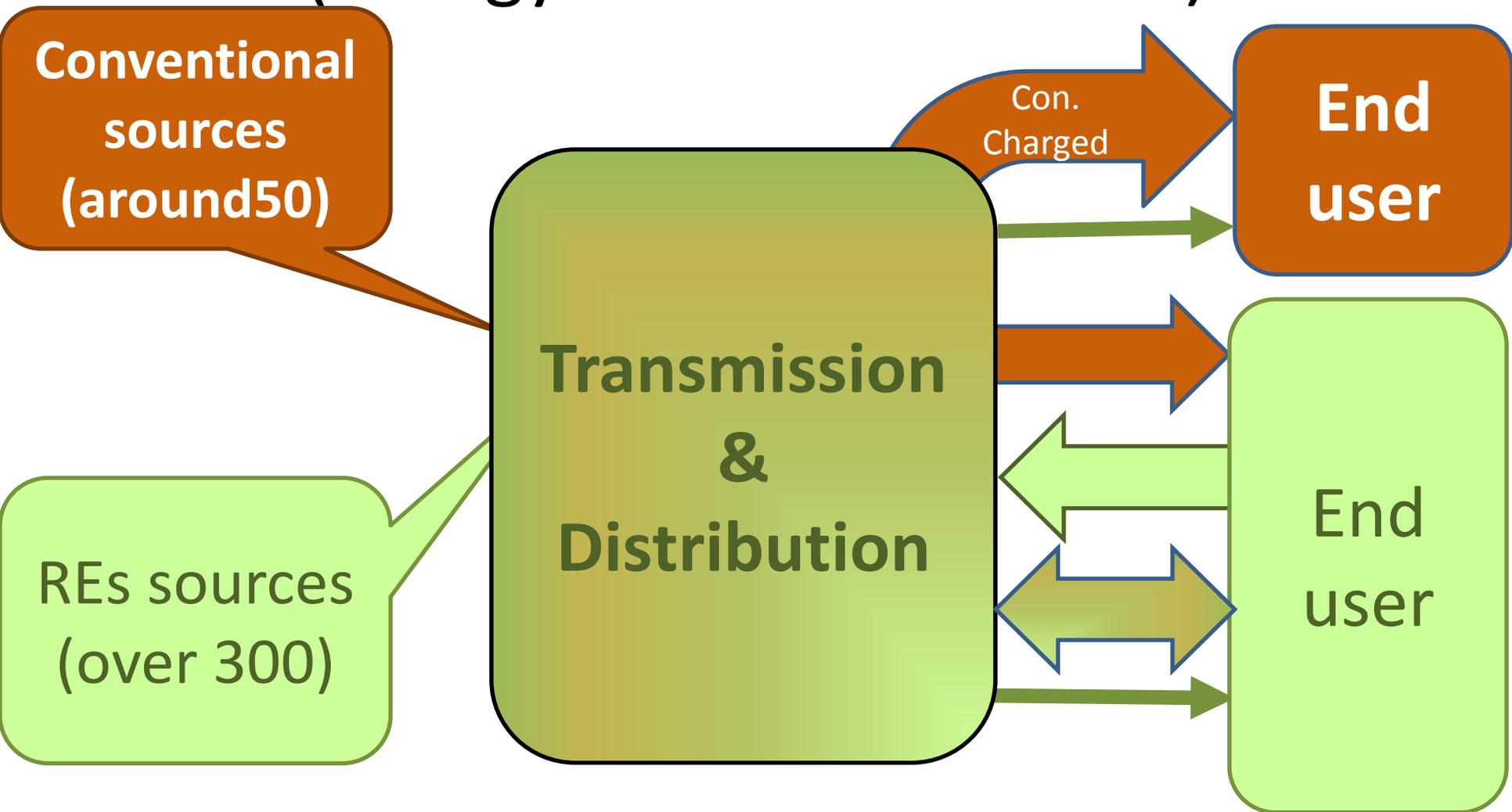


The Need for Smart Grids for RE

- Size of the system
 - Suppliers (went up from less than 20, including one RE, to over 300, including more than 280 RE)
 - End users (over 30 millions)
- Dispatching renewables:
 - Market form & rules (single buyer, liberalized, must feed, ...etc.)
 - Technical (technology, cost, system capacity, ...etc.)
- Cash flow management (from end users to suppliers)

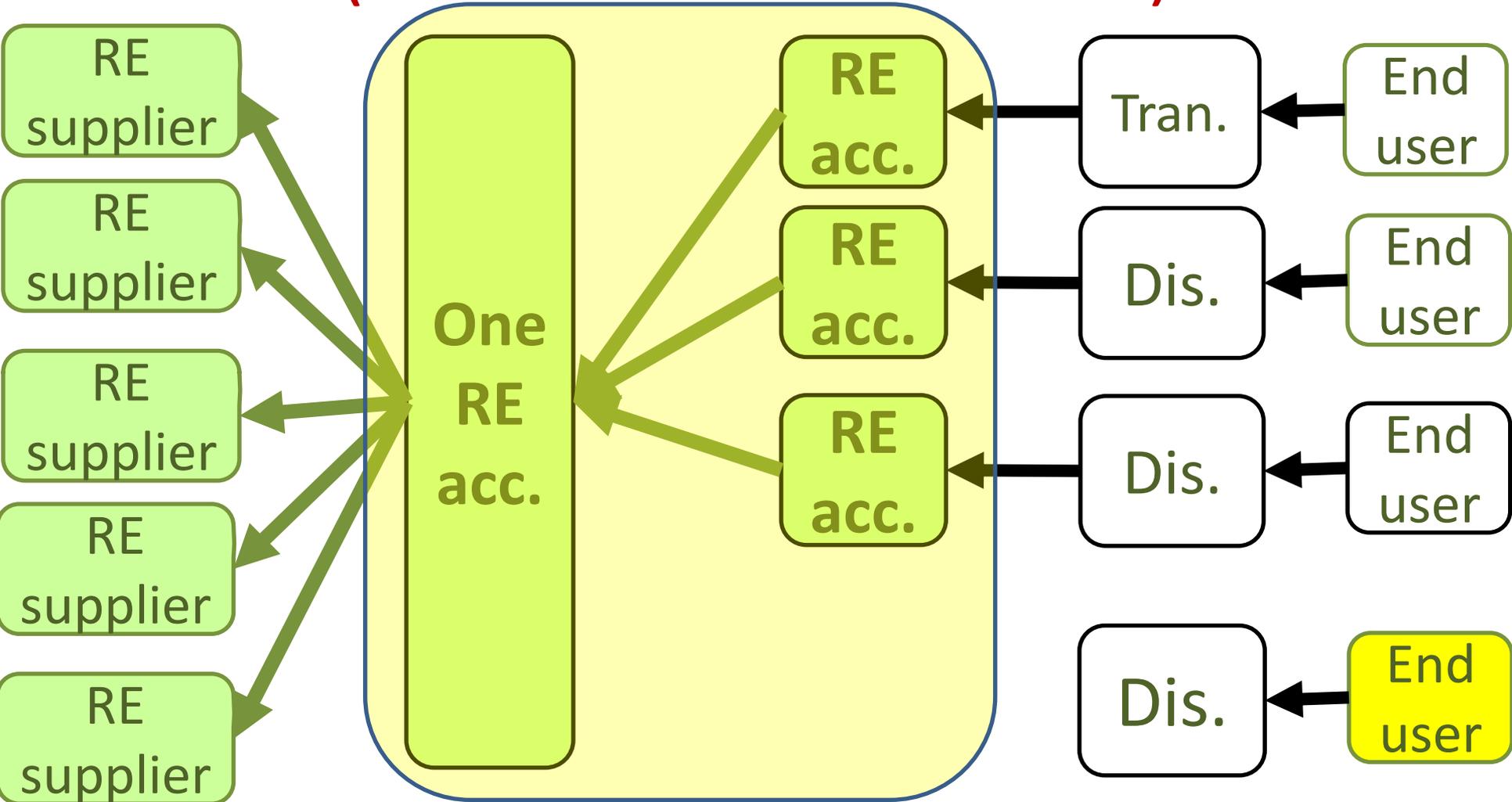
System Model

(energy flow almost there)



System Model

(Cash flow almost there)



**What are the lesson Learned from the 1st
round of Egypt's hugely attractive Feed
In Tariff Program and EETC's experience
with the private sector?**

How does this set the ground to a
second stage of renewable energy
development in the country?

The lessons Learned from the 1st round of Egypt's FIT Program

- It is a workable scheme in Egypt, even that a number of entities were involved (state, financiers and developers).
- It would have been faster if the associated documents were ready (PPA, UA, CA,).
- The FIT scheme attracted developers more than the others 3 schemes
 - 187 applicants,
 - 136 qualified (87 + 13+ 36),
 - 152 were qualified to PV rooftop installations.

The lessons Learned from the 1st round of Egypt's FIT Program (Cont.)

- It is pushing to excel on developing the obligatory quota scheme.
- The quota scheme will help in guaranteeing a secure cash flow for all the developers.
- It is helping in sending the right tariff signal to end users.
- It helps in attracting direct foreign investments; as well as technology know-how.

What are the lesson Learned from the 1st round of Egypt's hugely attractive Feed In Tariff Program and EETC's experience with the private sector?

How does this set the ground to a second stage of renewable energy development in the country?

Setting the ground to a second stage of renewable energy development in the country

- It sets a solid ground for a second stage of RE developments, where possible identifications for prevailing schemes will arise.
- The 1st stage helped in:
 - Increasing the creditability of the RE market in Egypt .
 - Mitigating the financing risk and the administrative challenges .

How is Renewable Energy ready to be integrated into Egypt's Electricity Supply? What are the additional development needed?

How is Renewable Energy ready to be integrated into Egypt's Electricity Supply? What are the additional development needed?

RE is fully ready to be integrated into the electricity supply mix. This is very much controlled by:-

1. The technical capability of the network.
2. The investment competitiveness on the supply side.
3. The development of a mature set of regulations, addressing the network as well as market rules.

**Is there potential for an REIPPP Programme like South Africa's hugely successful offering?
What does the tariff structure look like to support such a programme in Egypt?**

Is there a potential for an REIPPP Programme like South Africa's hugely successful offering?

What does the tariff structure look like to support such a programme in Egypt?

1. Sharing the lessons learned, even though, each country has its own specific.
2. Current legislation in Egypt does not prohibit that .
3. NREA is targeting Public Private Partnership (PPP) in some of its future projects.
4. Egypt welcome other possible schemes in order to guarantee its RE plans.

Thank you for your attention

Chairperson@nrea.gov.eg