

Confidential



# Lessons learned from International Solar Tenders

ASEF 2017

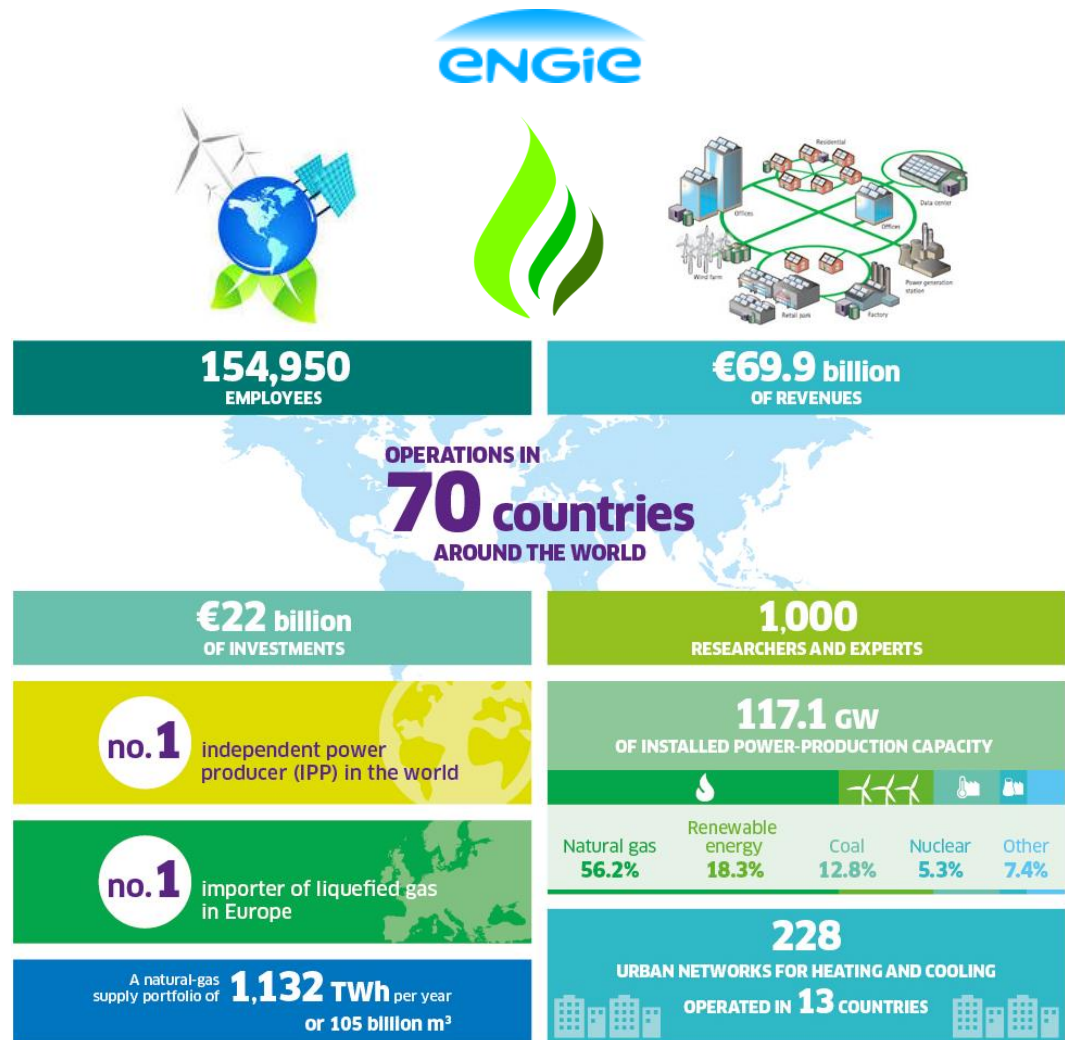
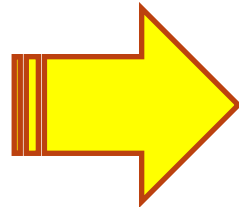
# ENGIE: A Global Leader in Energy

ENGIE's focus is in three core businesses:

- Electricity
- Natural Gas
- Energy Services

In order to support and develop a new vision of energy for the world: *Provide cleaner and more innovative energy solutions*

**Key Figures**  
as of December 31, 2015



# ENGIE Transformation – Leading the Energy Revolution



**REDESIGN & SIMPLIFY  
THE PORTFOLIO**



**IMPROVE  
EFFICIENCY**



**PAVE THE WAY  
FOR THE FUTURE**



**COMMIT TO DIGITAL  
TRANSFORMATION**

## A Fundamental Business Model Shift

- FROM an Integrated merchant wholesale generation model
- TO a downstream customer-centric model combined with contracted generation

## High Expectations from the Group

- Develop renewables
- Expand BtoB stronghold
- Grow nascent positions in B2C and B2T



**LOWER EXPOSURE  
TO COMMODITY PRICES**

**Contracted**

**DOWNSTREAM**

**Customer Solutions**

**PRIORITY TO  
LOWEST CO<sub>2</sub> OPTIONS**

**CO<sub>2</sub> Light**

### Achievements:

- Divestiture of Hydro assets June 2016
- Expected close of Thermal Assets YE2016
- Investments in OpTerra, Green Charge, Guttman to amplify our voice in the market



# Solairedirect / ENGIE Solar:

## A Global Solar Power Company of ENGIE Group...

### Corporate

### Projects



€471,4m in revenues for FY 2016



c. €1bn of equity and debt raised for project financing



A presence on **5 continents**, focused on competitive solar markets



**110 solar parks**<sup>(1,2)</sup> in operation, under construction or under Backlog



c. **200 employees** worldwide



A generating capacity of around **2 GW** (constructed, under construction or under backlog)



Solairedirect is a wholly owned subsidiary of ENGIE Group

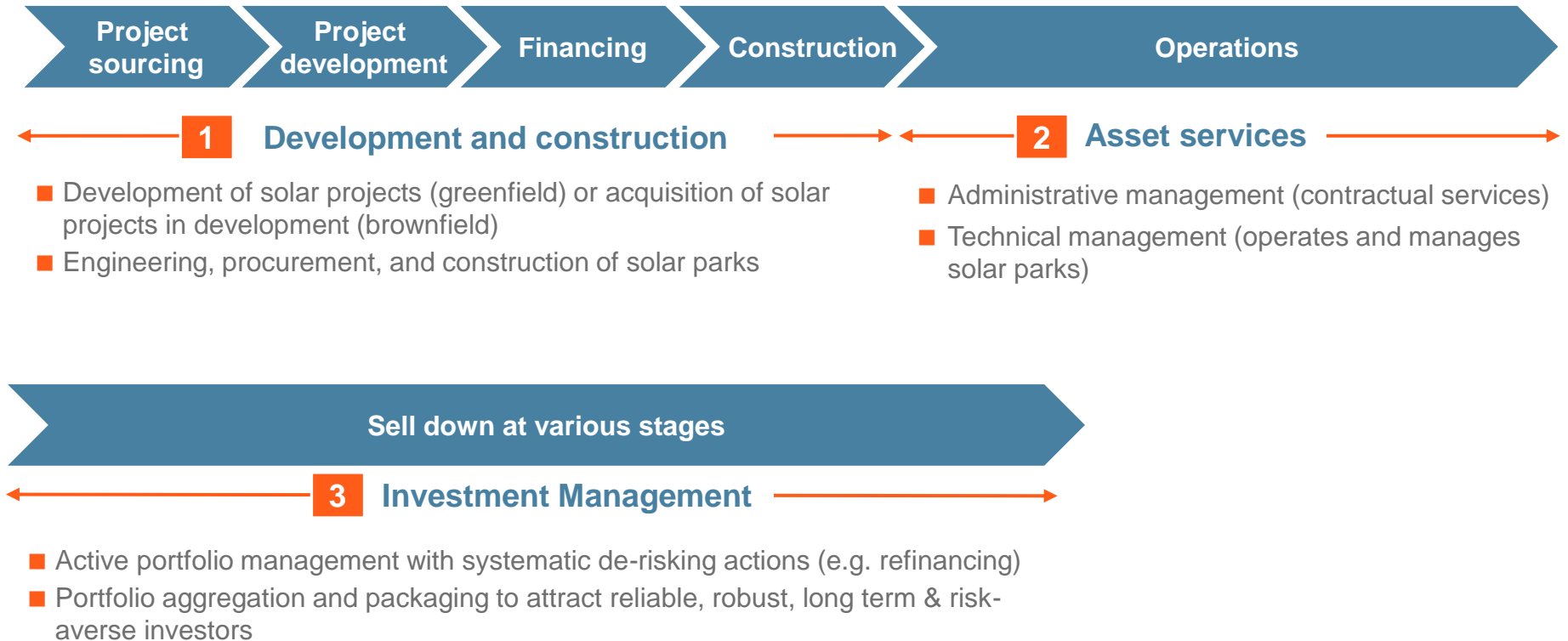


**More than 13 GW**<sup>(1)</sup> of projects under development

(1) As of end April 2017

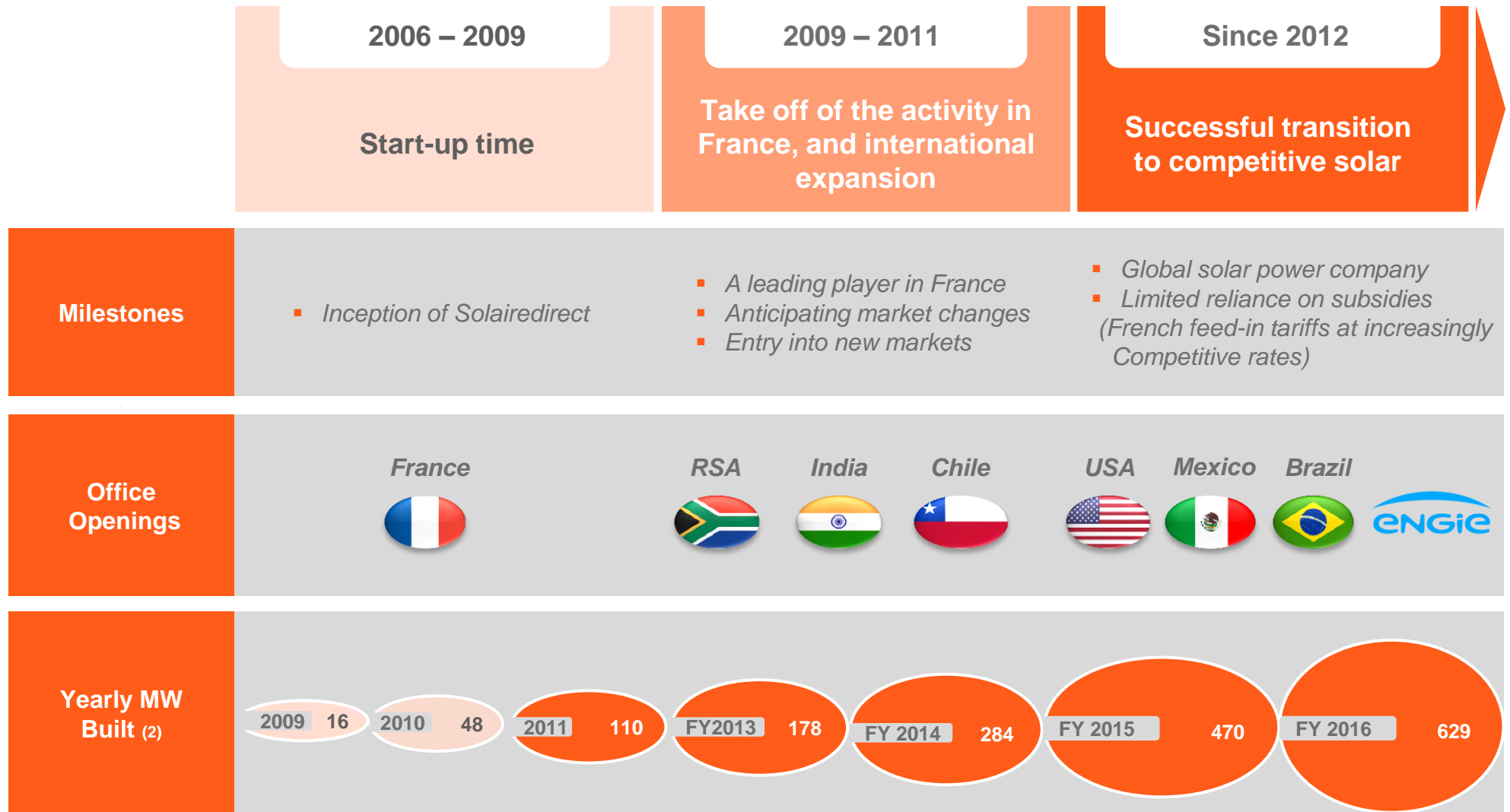
(2) Solar parks include large rooftop projects over 1 MW

# ... with a fully integrated, optimized and flexible business model for solar energy



||| An integrated model industrializing the solar value chain

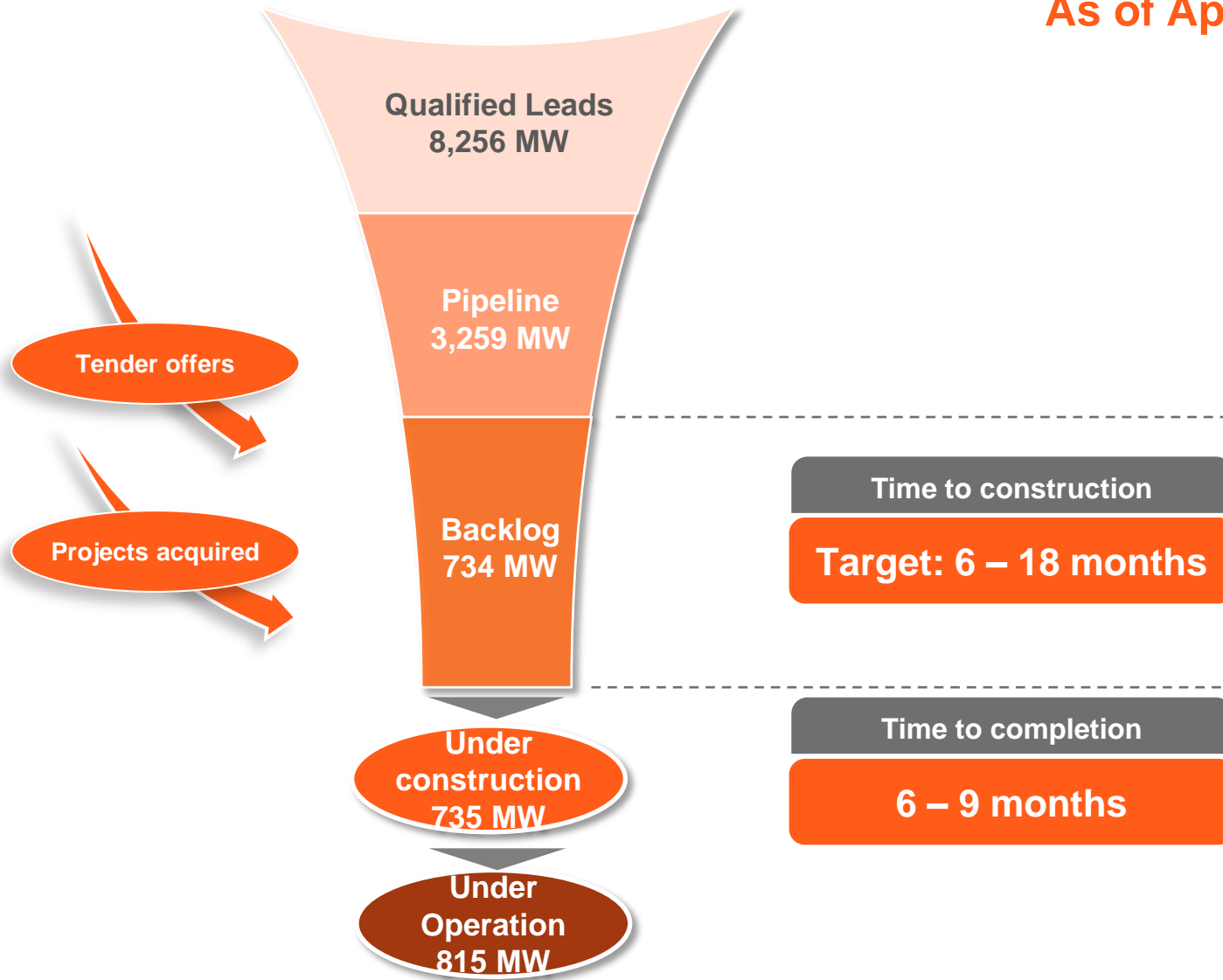
# ...shaped by a story of entrepreneurial growth



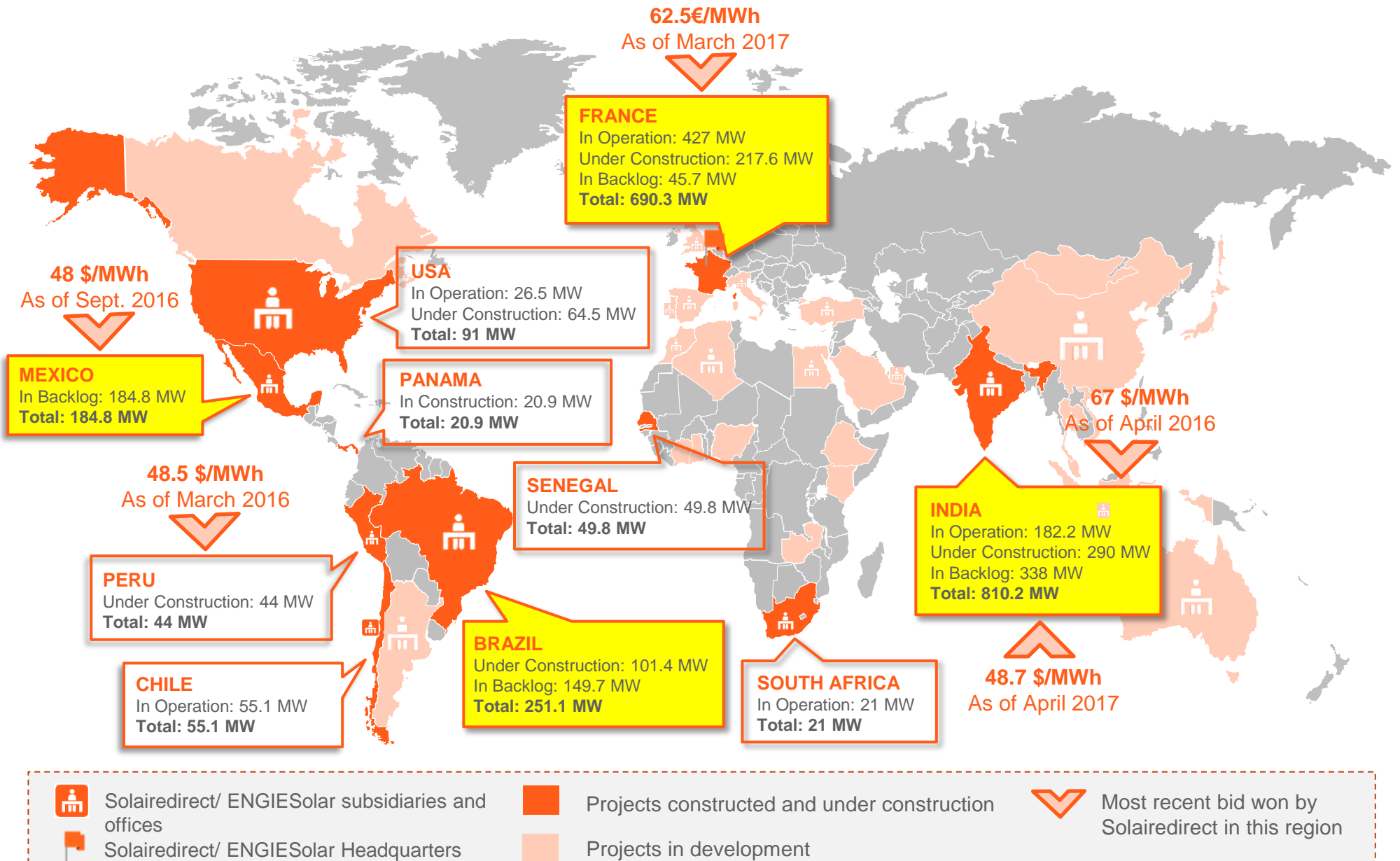
(1) 2013 is a 15-month calendar year  
 (2) Cumulated

# 13 GW of projects under development and under construction

As of April 30 2017



# Ideally positioned for focused growth





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# From Feed In Tariffs to Competitive Tendering

## Feed In Tariffs

- Guaranteed grid access via obligation on utility to purchase renewable energy as a priority (must dispatch)
- Obligation on utility to pay a guaranteed, typically above market price per kilowatt hour, with optional indexation and/or escalation
- A sufficiently long period during (typically 20 years) which this price is being paid in order to allow investors an acceptable return

## Pros and cons

- Stimulate investment in relatively unestablished market where development cost are high due to regulatory uncertainties and an immature local industry
- Difficult for the regulator to set the right tariff, potential exposure to overpaying
- Risk of creating artificial market imbalances resulting in inefficiencies across the value chain

## Competitive tenders

- Streamlined process with all terms and conditions fixed at the start
- Prequalification to determine participants who meet minimum requirements for eligibility
- Submit non-negotiable, firm price bids
- Buyer selects lowest bidder(s) until desired capacity is reached
- Sign standardized non-negotiable PPA backed by government

## Pros and cons

- Developers get a price that is sufficient to bring the projects online
- Ratepayers are protected against overpayment
- Unsustainable race to the bottom

# Solar Tenders in France

## • French tenders context

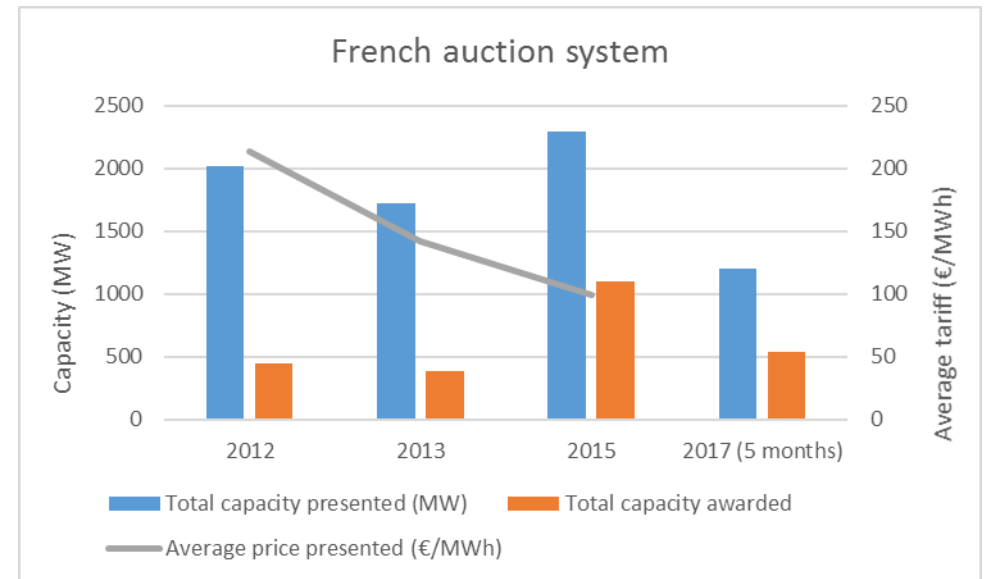
- France has used the FiT system from 2006 before switching definitely in 2016 to tender scheme (with co-existence from 2012-2015)
- Last FiT projects shall be completed before Nov 2017
- From 2017-2020, 1GW/year auction mechanism – Not major need for additional power so “limited” capacity offered yearly compared to country’s capacity

## • Key parameters of French tenders

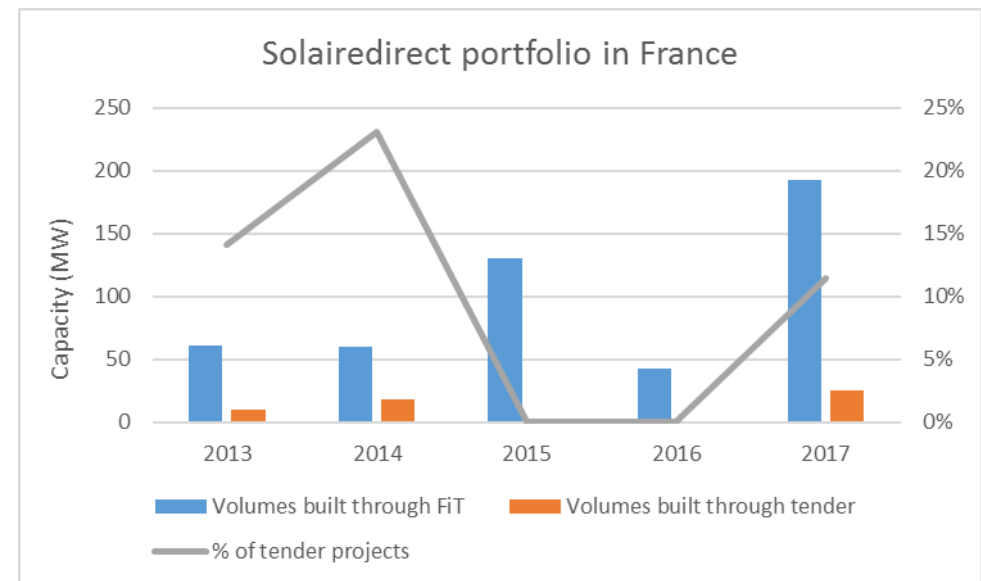
- Each developer shall bid with its own **permitted** projects
- PPA tariff counts for 70% of the result
- PV modules carbon footprint counts for remaining 30%
- Incentive given for projects to be built on “degraded” areas, such as dumps, etc.

## • Solairedirect’s positioning

- During co-existence period, Solairedirect always focused on FiT projects, even with lower tariff by 20% or more (visibility)
- Solairedirect starts to present a significant amount of projects in 2017
- The carbon footprint notation allows less competitive players to be awarded even buying more expensive modules



Tariff not published for 1st 2017 auction



2017 figure includes projects under construction

# Solar Tenders in India

- **India has set up the most efficient auction system**

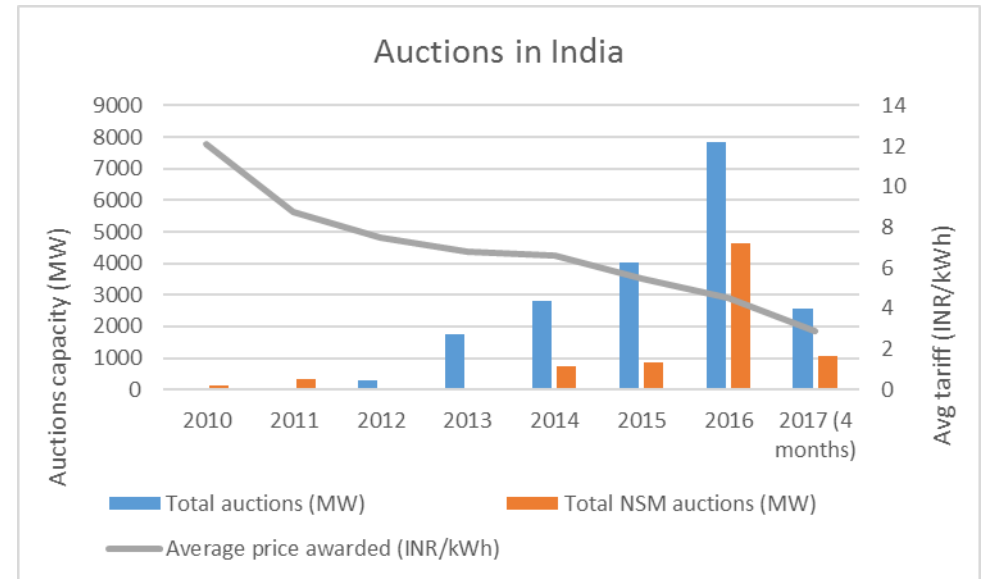
- More than 20GW auctioned in the last 5 years, with a target of 100GW installed in 2020
- Combination of national (NSM) and regional utility tenders to achieve the ambitious target
- World's most competitive solar environment, even with INR PPA
- The PPA is signed by the regional utility, but backed (for obligations) by the national utility (NTPC or SECI) → This significantly enhances the bankability and improves the competitiveness
- Solar Park system: the land & grid connection are provided by the tender → (i) It removes most of development risks and (ii) align bidders to get the cheapest tariff

- **Key parameters of NSM tender system**

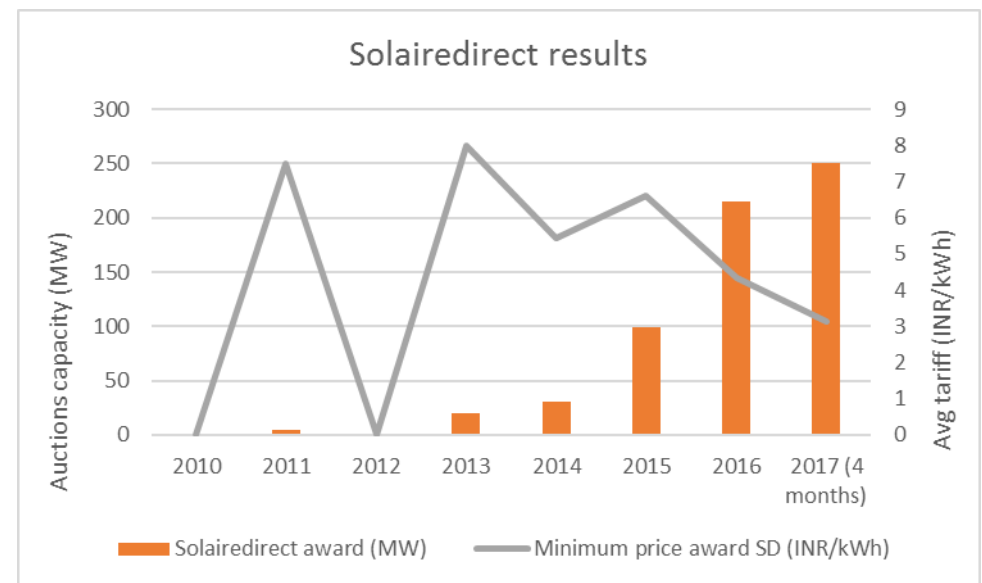
- Solar park & PPA guarantee as described above
- 15 months from auction to project completion → Sourcing of cheap renewable power is urgent for the country
- Electronic reverse bidding in 2 rounds, with 1<sup>st</sup> for prequalification (between 10-15 bidders)
- **The 2 main objectives are (i) affordable and (ii) quickly dispatchable solar power**

- **ENGIE's achievements and ambitions**

- Already 620MWac awarded, making Solairedirect one the key player in the country
- Ambition of [300;500]MW per year during the next years



No precise data for 2010 & 2011  
 No NSM auctions in 2012 & 2013



No participation in 2010 & 2012

# Solar Tenders in Brazil

## • Brazilian tender system

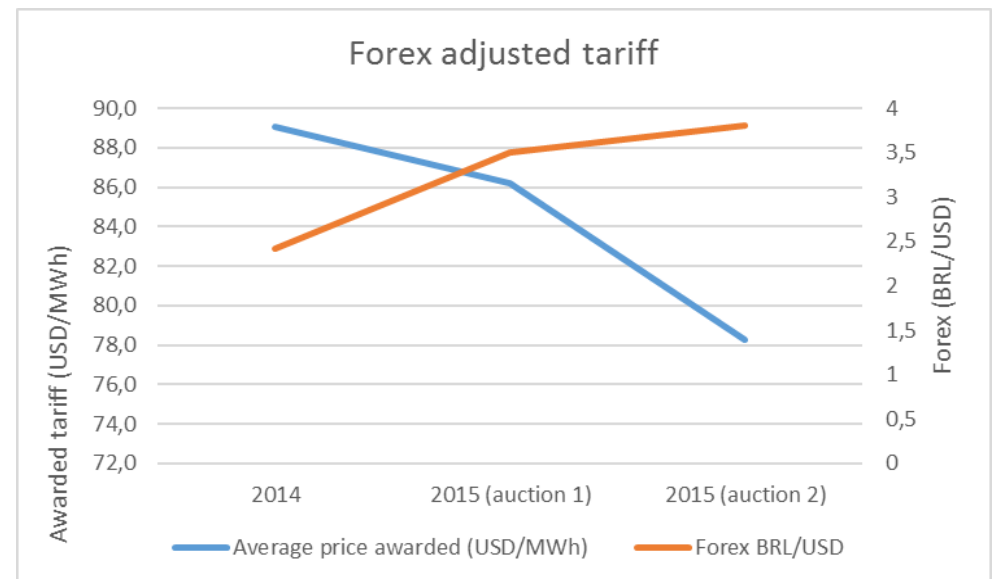
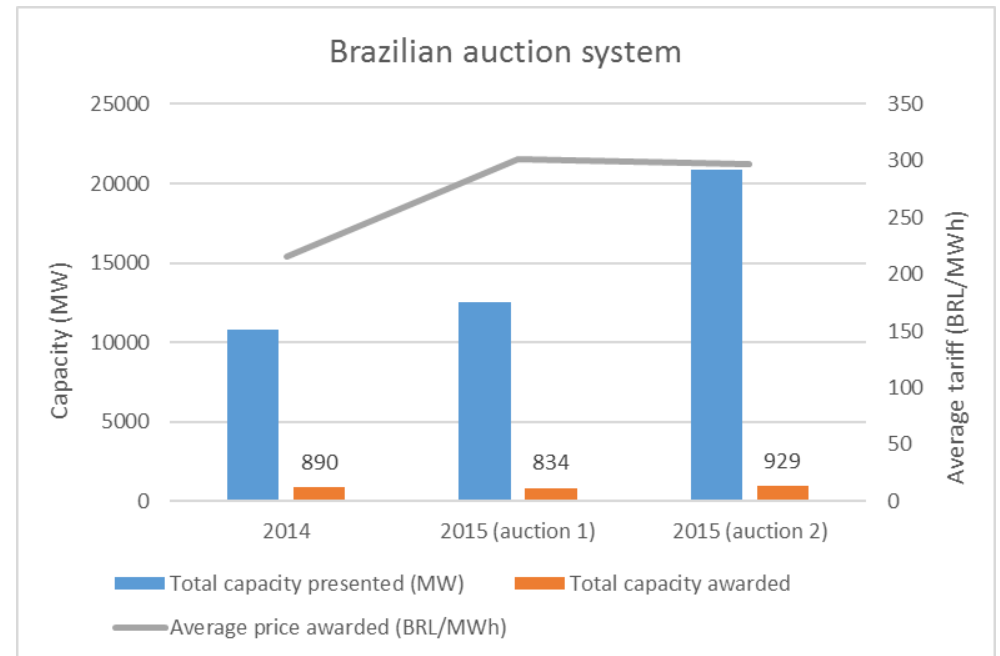
- Energy auction reserved to wind and solar
- 2 rounds auction with:
  - Round 1: competition for connection capacity at substation level between both technologies
  - Round 2: national reverse bid per technology
- Projects shall be brought by bidders, at early development stage – Technical/ financial prequalification process to participate
- PPA in local currency, escalated to country's inflation
- 2-3 years to reach COD

## • Key specifics

- In Brazil, local content for equipment is highly favored through project financing via national development bank
- Brazil has cancelled 2016 auction scheduled in December 3 weeks prior to bid date
- **Today, this country is seen as very uncertain**

## • Solairedirect participation and results

- Solairedirect only entered Brazil in 2015, and did not participate to 2014 and 2015 auction 1
- Solairedirect has been awarded with 200MW in 2015 auction (#1 awarded)



# Solar Tenders in Mexico

## • Brief description of auction mechanism

- First auction in March 2016
- Yearly mechanism for renewables energy, with energy volume targets (8-10 GWh/yr), until 2025 minimum
- Bid for (i) energy, (ii) green certificates and (iii) capacity
- Renewables technology agnostic
- Electronic bidding with (i) pre-qualification phase on technical/financial capabilities and (ii) bid bond
- Projects to be provided by developers

## • Key parameters of tender system

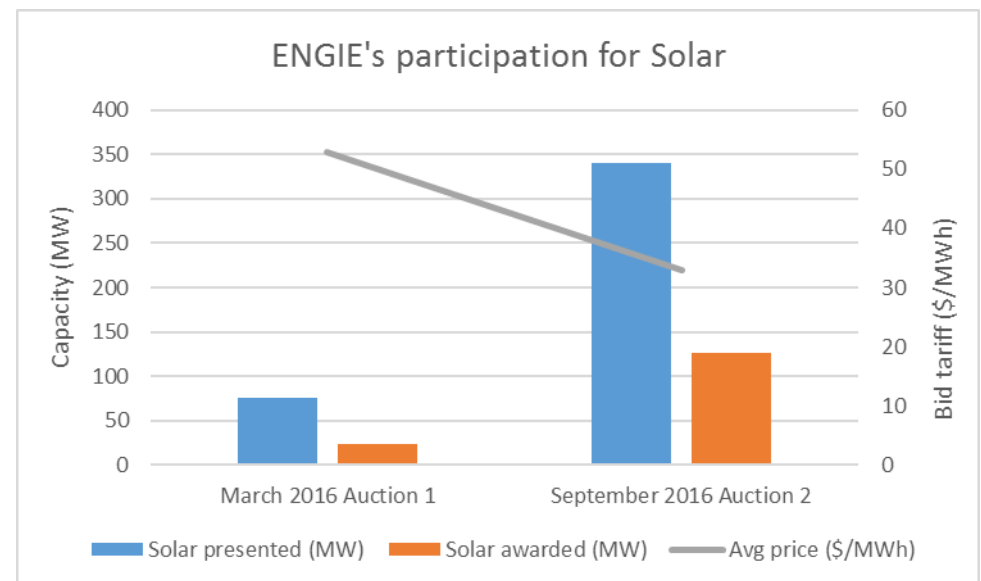
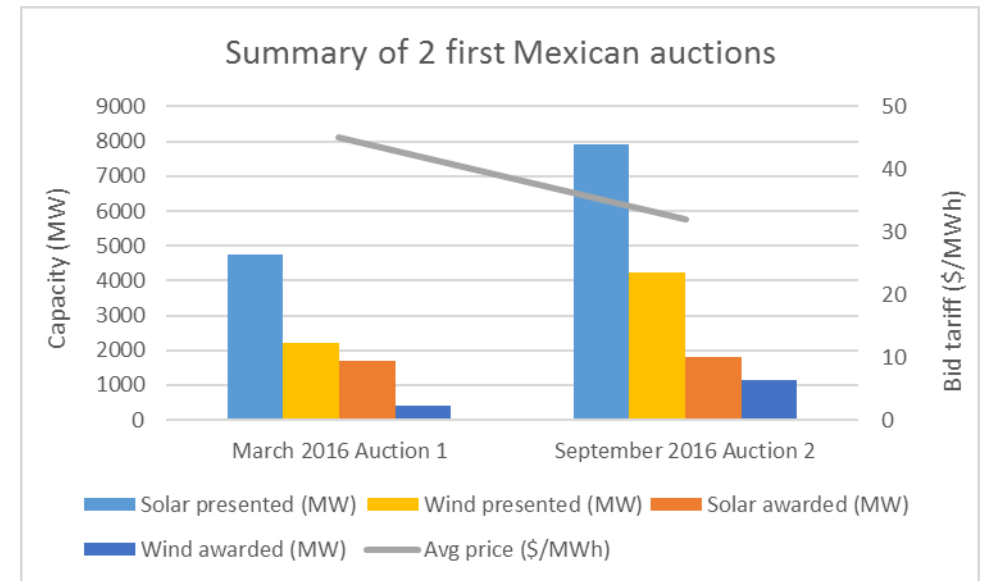
- Concept of “zones” where awarded capacity is limited due to interconnection facilities (built or scheduled to be built)
- Concept of *diferencias esperadas*: auction regulator gives tariff incentives in zone where it thinks more capacity will be required in the coming years
- **Those 2 parameters are highly variable from one auction to the other**

## • Objectives for Mexican government

- Supply the country with cheap and reliable electricity (with prices < \$30/MWh, one of the most competitive market)
- Chose the location of electricity to (i) match needs and (ii) grid infrastructure investments

## • Key success for this auction system

- Visibility on long term energy supply
- Bankable PPA, denominated in USD, even if shorter that usually (15 years)





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# Lessons learned from tender systems

## What works well

- **Give visibility to the market**
  - Participating in a public energy auction is a heavy investment, for project developers, utilities, advisers; etc.
  - Visibility with (i) volumes and (ii) regularity will help attracting the most competitive players
  - Relative stability of main tender rules is key (even if some parameters may change)
- **Design the auction system according to needs**
  - Short term COD deadline + remove of development risk in case strong electricity needs
  - Putting incentives to drive projects location
  - Local content rules to promote local industry vs enhance competitiveness
- **Enhance the « financiability »**
  - Provide bidders with strongly bankable PPA
  - Allowing change of control under certain conditions, to attract further down the road institutional investors
  - Local content rules to promote local industry vs enhance competitiveness

## What to avoid

- **Wrong auction design between risks allocation and expected aggressive tariff**
  - The more the bidder face development risk (no connection knowledge for ex), the higher will be the tariff
  - Auction design that allows project speculation (in case of too long COD deadline for ex)
- **Low visibility market**
  - Cancel an auction 3 weeks prior bid date (as Brazil in 2016)
  - Change the key rules of the tender between every bid
  - Very low volumes (30MW/year cannot attract big players)

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## Our Wish list for tender systems

- Designed to attract early stage developers to achieve competitive costs
- Clear bidding rules and requirements
- Consistency between bidding rounds to allow developers to continue to bring forward projects
- Improved timing and costs for grid connection
- Protection against grid curtailment

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# What is a winning project

- **Good project fundamentals**

- Adequate scale to support economics (>5MW)
- Connection to grid feasible at reasonable cost and timescale
- Reasonable land lease / purchase and civil works costs
- No major environmental concerns (flooding, habitats....)
- Good irradiation
- Access
- Etc

- **Well-progressed development status**

- Land rights secured through option to lease/ purchase
- Grid connection secured or at least well-progressed negotiation of cost and schedule
- Permitting requirements fully understood and feasible in required timescale

- **ENGIE seeking to acquire projects under development via a Request for Proposal process**

- **Contact**

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Q & A