

Enel: Introduction

Auctions: Enel experience and key factors

Case study: India

Closing remarks

Enel today¹

Global and diversified operator



~**40** €bn Regulated Asset Base
~**62** mn distribution end users

#1 in Italy, Spain, Chile, Peru
#2 in Argentina, Colombia



~**18.3** mn free retail customers

#1 in Italy and Spain



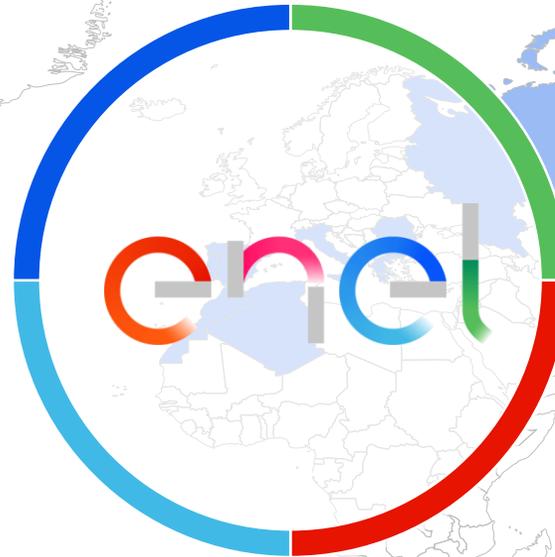
~**38** GW renewable capacity²

Global leadership in renewables



~**47** GW thermal capacity

Highly flexible and efficient generation fleet



1. As of 2016
2. Consolidated (35.9 GW) and managed (1.9 GW) capacity including 24.9 GW of large hydro.
3. Presence with operating assets

■ Countries of presence³

Operational data

Leadership along the various segments of the value chain



Key indicators¹



Infrastructure & Networks

62 mn end users
41.2 mn smart meters
1.9 mn km grids



Retail

56.4 mn power customers
5.5 mn gas customers



Renewables generation

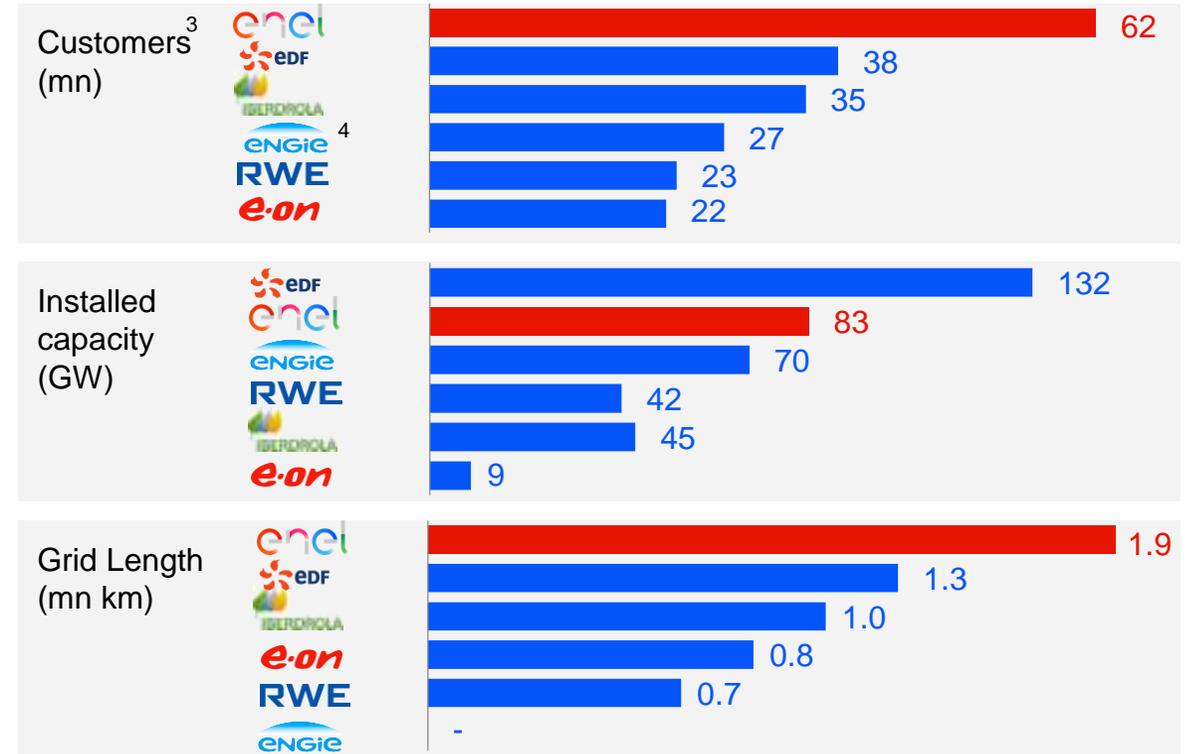
35.9 GW of installed capacity⁵



Thermal generation

46.8 GW of installed capacity

Enel and European peers²



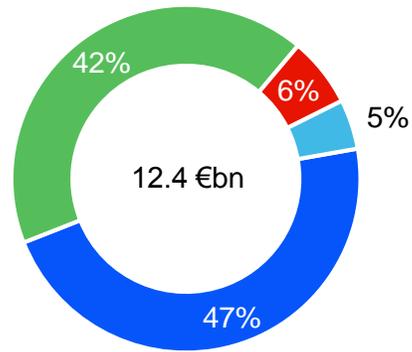
1. Data as of December 31st 2016; 2. Data as of December 31st 2016; 3. Retail Customer: Free + Regulated; 4. Figure refers to the European perimeter (Engie does not disclosure total number of customers); 5. It doesn't include 1.9 GW of managed capacity

Enel Group

2016-2019 strategic plan update

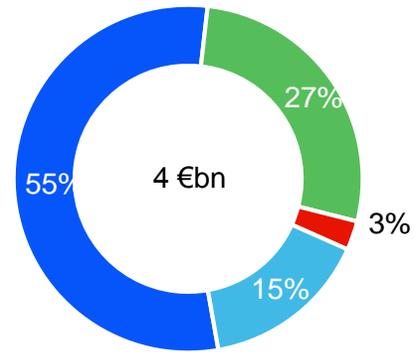


2017-19 growth capex by business



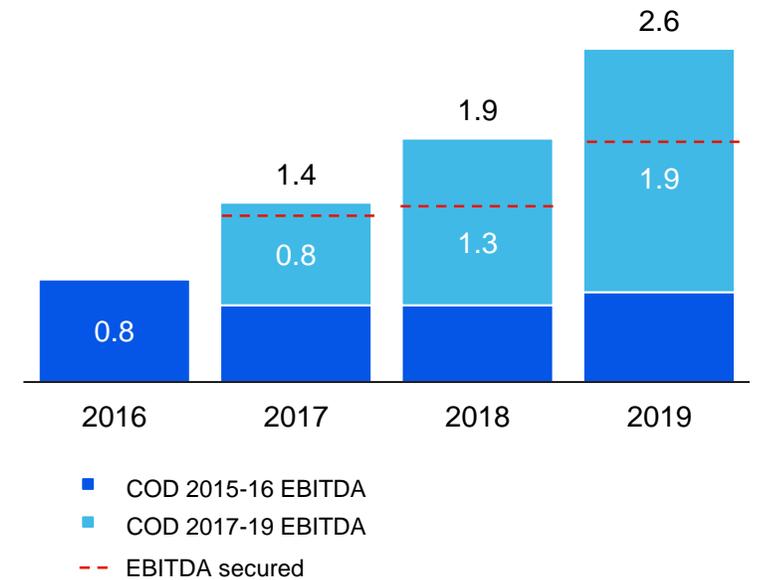
- Networks
- Renewables
- Thermal generation
- Retail

2017-19 cumulated growth EBITDA



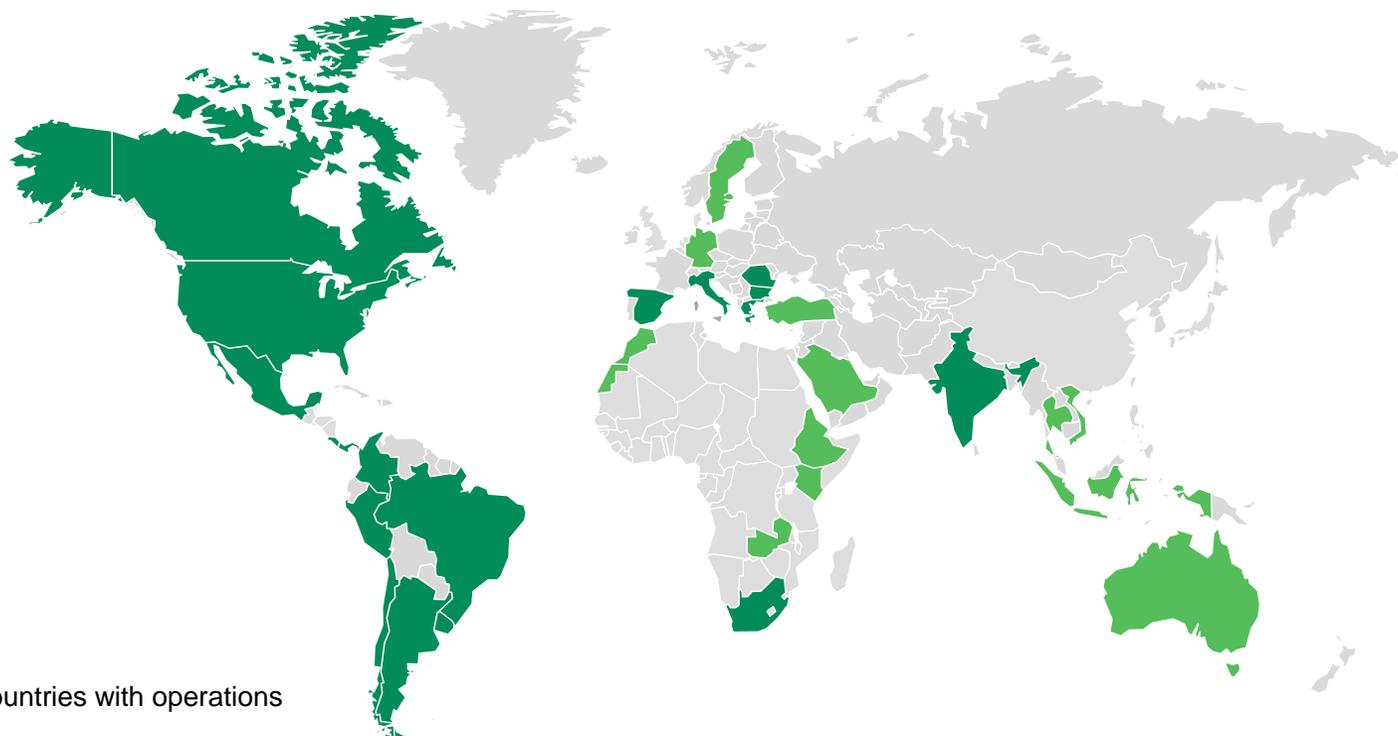
- Networks
- Renewables
- Thermal generation
- Retail

Growth EBITDA by year (€bn)



Enel Green Power

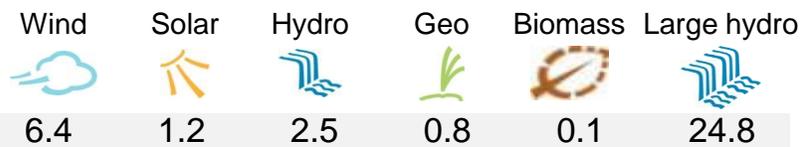
Renewable energy division



 Countries with operations

 Countries with development

Net installed
capacity¹ (GW)



Key figures

2016

Capacity¹ (GW)

35.7

Production (TWh)

92.4

Key financials (€bn)

2016

EBITDA

4.2

Opex

1.4

Maintenance capex

0.4

Growth capex¹

2.8

Agenda



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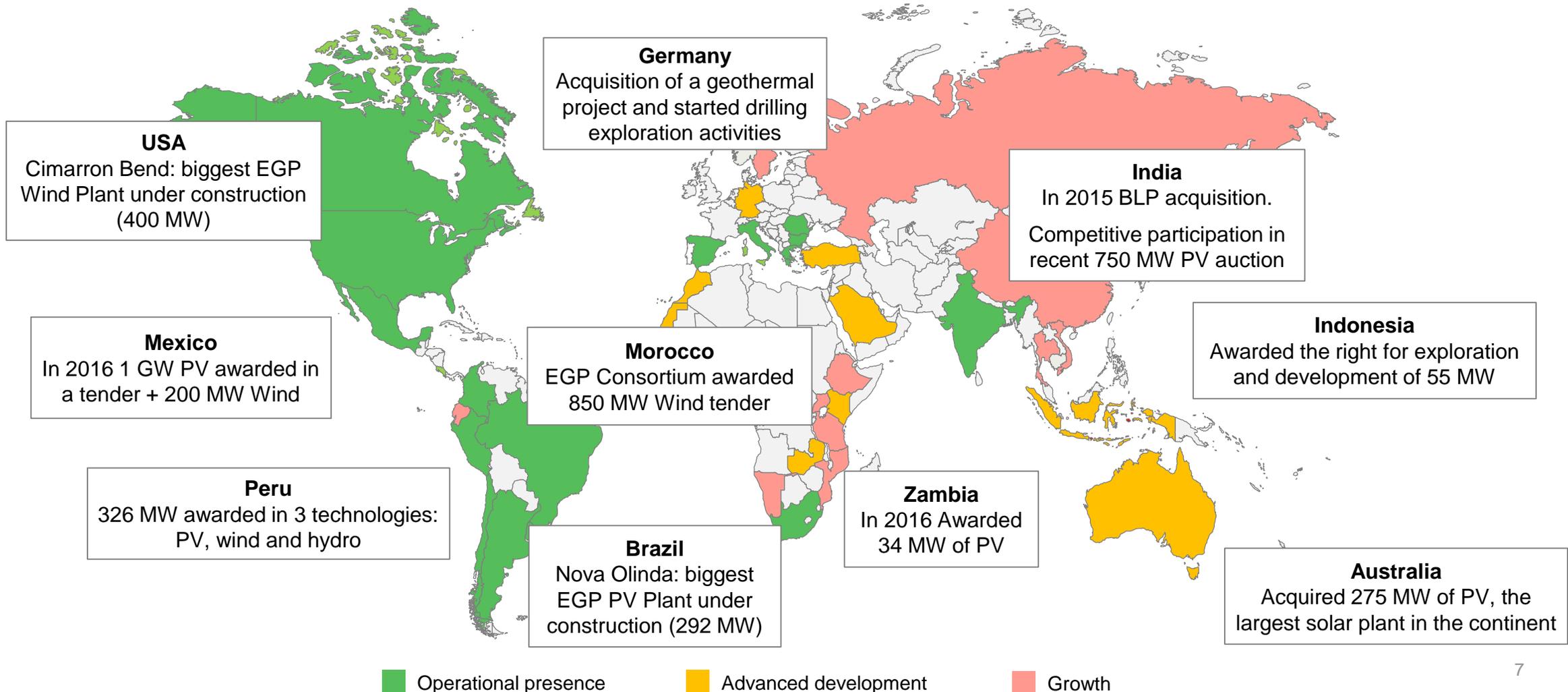
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Enel Green Power

Recent achievements (2015 - Present)



Key Elements in Auction Design

From the perspective of IPP



- Recognize “Long-term” nature of Investment



- Clear, long-term regulation and targets
- Guard against short-term opportunistic players

- Not just the \$, also the contract (PPA)



- Ensure “bankability” of terms – e.g. clear provisions on curtailment, dispute settlement, force majeure, termination, payment guarantee

- Clarify risk allocation



- Off-taker credit risk? Foreign currency risk?

- Align with reinforcement of Grid Infrastructure



- Consistency with TSO planning, adjust auction mechanism (e.g. per region, differentiated tariffs, separate auction for interconnection)

Potential investors need stable regulation, especially on four high priority factors

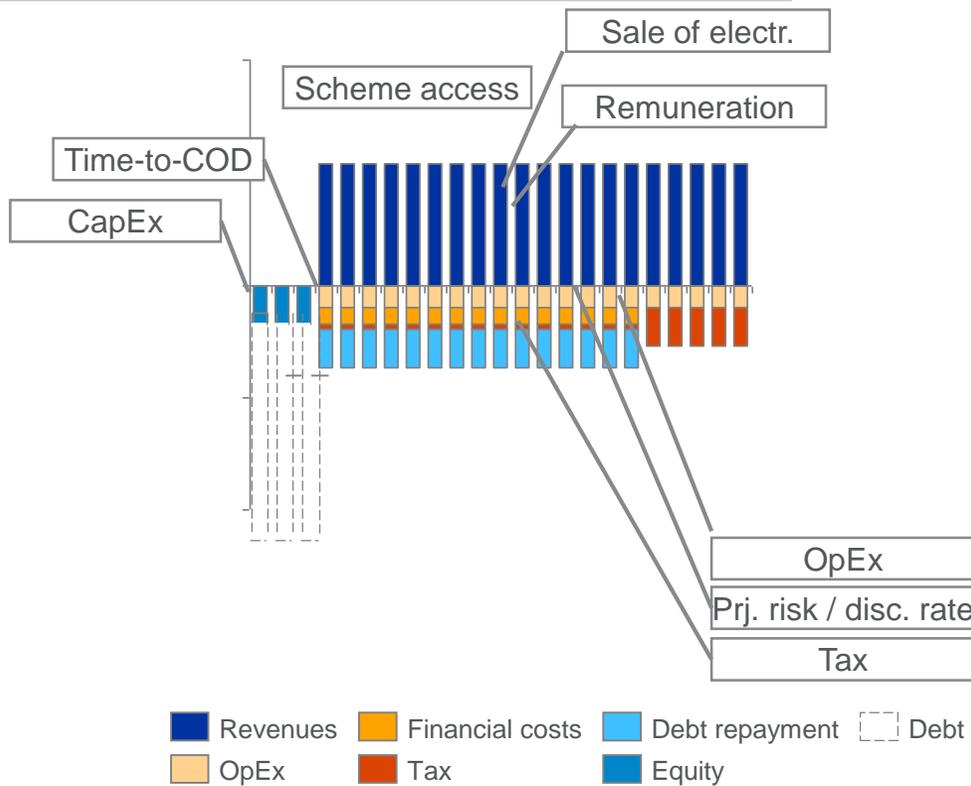
Factors: remuneration, electricity sales, project risk & scheme accessibility



Illustrative analysis

Equity investors can be affected in their project business plan by multiple factors...

...each with a different potential severity of impact



Factor	Description	Impact ¹
Sale of electricity ²	▪ Certainty that production will be fed into the grid (thus sold)	●
Remunerat. ²	▪ Level of remuneration received by RES plant	●
Project risk / discount rate ⁴	▪ Discount rate of cash flows (thus embedding perceived risk)	●
Time-to-COD ³	▪ Time between project award and COD (start of revenues)	◐
CapEx ²	▪ Plant cost, in terms of equipment and installation	◐
OpEx & Tax ²	▪ Operation and Maintenance expenditure ▪ Tax rate & new taxes	◐
Scheme access	▪ Way to filter access to RES scheme	◐

Factor impacts the chance investors have to actually "win" a project

1. Measured as sensitivity of IRR to modifications to the listed factors (see factor-specific footnotes for detail); severity ranking based on the following thresholds (highest to lowest IRR impact): 3.0p.p. / 2 p.p. / 1 p.p. 2. Assumed change of +/- 10% 3. Assumed delay of 1 year in project EPC (4 years vs. 3) 4. Assumed +200 basis points on interest rate
Source: BCG analysis

Tender Agreements

Key points for a bankable PPA



- **Energy charge currency:** Energy charge paid in US \$ or in local currency equivalent of the amount payable in US \$ (based on the relevant date of payment as notified by the Central Bank on the day before such payment is made).
- **Energy charge Indexation:** adjusted annually to US or local CPI.
- **Deemed energy payment:** payments of deemed energy to be guaranteed in case of COD delays due to the Buyer, Curtailment and post COD Grid Unavailability (both planned and forced).
- **Liquidity Guarantee:** provide a liquidity support mechanism, such as an escrow account or an on-demand guarantee issued by acceptable bank, based on foreign currency, to be used in case of Buyer's insolvency or any other Buyer's event of default.
- **Compensation on termination in case of Buyer's default:** in case of termination for a Buyer's event of default, the Buyer shall provide a termination payment to compensate the Seller's debt, equity and taking into account the expected return on investment. The amount to be valued by a reputable Independent Third-party Evaluator agreed by the Parties.
- **Change in Law and economical contest:** include provisions of price adjustment in the case of law, tax regime or economical contest changing after the date of the effective date of the PPA, adversely affecting the expected return on investment.
- **Arbitration:** any dispute (not resolved through an Expert determination) to be solved under rules generally acceptable to the International Community (e.g. UNCITRAL or ICC)
- **Force Majeure:** to excuse the Seller from performing its obligations if a Force Majeure Event (an event beyond the reasonable control of such Party) prevents such performance.
- **Term:** the duration of the PPA shall be 25 years, extendible

Auctions

Best practices and lessons learnt



Structured pre-qualification helps to assign remuneration to solid projects and investors

- Filter out speculators, high upfront commitments (bid bond), penalties in case of delays, constraints on project property before COD
- Important to predict unfair competitive behaviors (e.g. ways to by-pass pre-qualification criteria)

Guarantees on energy offtake are a critical aspect, in particular for project bankability

- Long term PPAs (either with regulator or private) a key requirement from financial institutions
- Critical to boost RES PPA market, either via quota obligations or auctions, with capacity targets aligned with available project pipeline

Clear Timeline to extract the best value from the auction

- Avoid frequent postponements is very important to have the most solid investors in the game

Local content constraints should be set consistent with local ability to provide service

- High local content target implies buying locally equipment with strong effect on performance
- Local content requirements can be balanced-off by incentivizing other items of the investors' cost structure (e.g. financing, fiscal)

Communication with players when setting rules and during implementation a success factor

- Frequent consultations when designing auctions, direct channels during auctions
- Q&A session and pre-bid meeting are crucial to have a well structured bidding process

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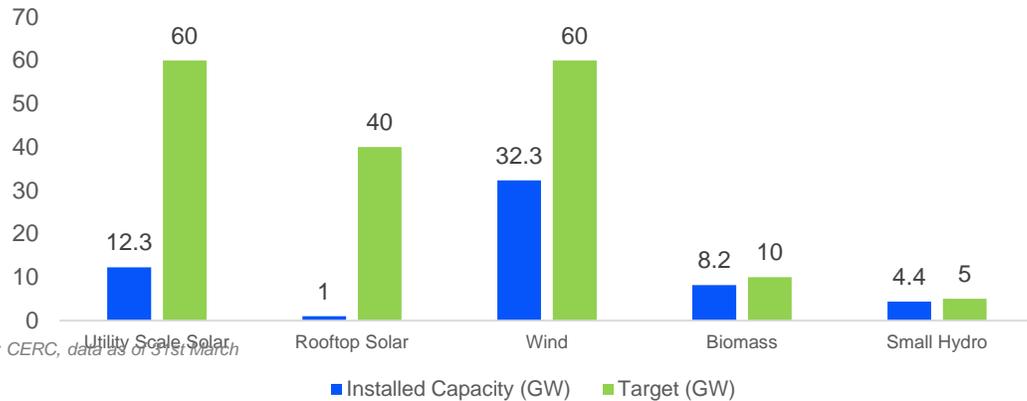
Closing remarks

India Renewables Scenario

Capacities, Targets, Mechanisms & Tariffs



RES: Installed capacity vs 2020 target (in GW)

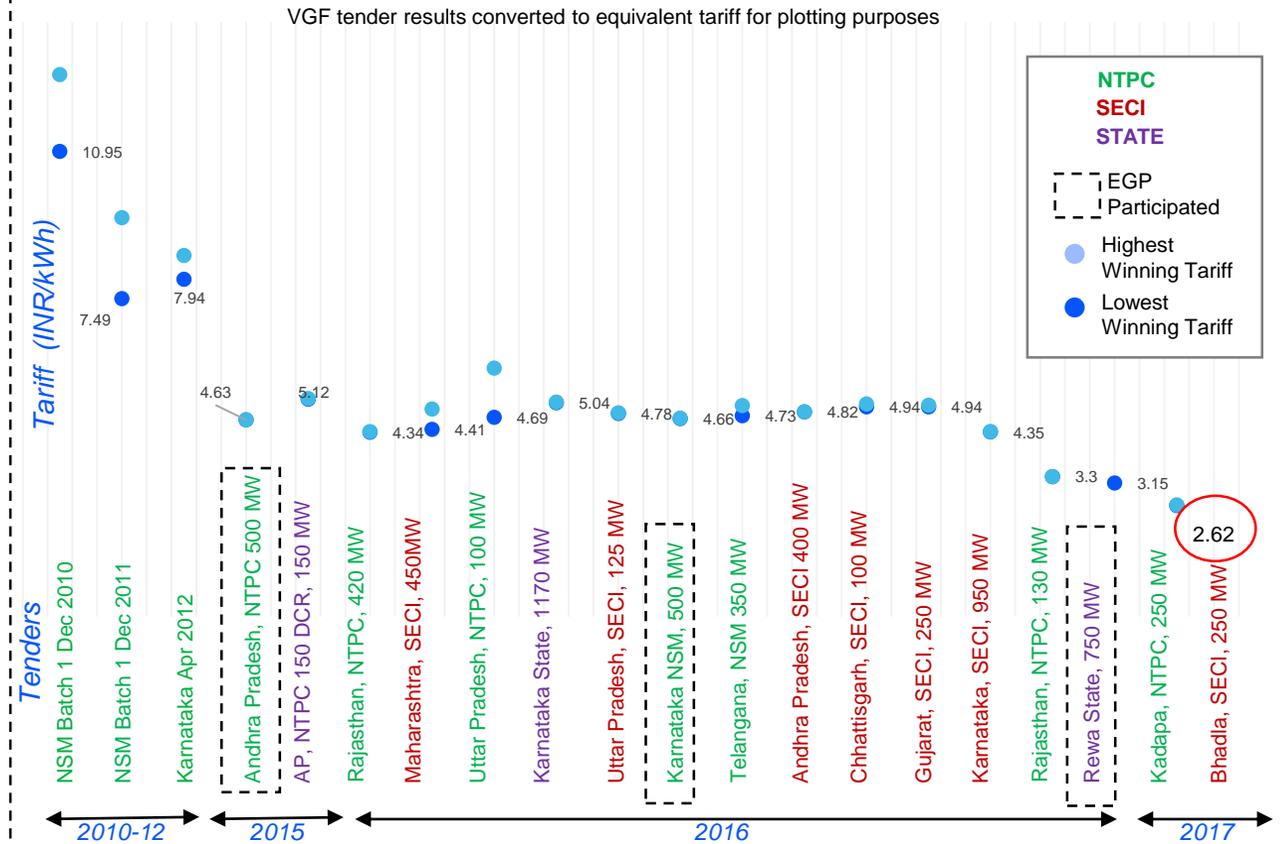


*Source: CERC, data as of 31st March 2017

- These targets are divided in phases and batches that use different incentive mechanism such as tenders on tariffs, tenders on Capex grants or EPC tenders through government utilities. The main implementing agencies are:

Central Government	NTPC	<ul style="list-style-type: none"> • Techno commercial submission and online auction on tariff or capex grant. • Solar Park and non-Solar Park Model • 25 year PPA with NTPC/SECI + PSA with State Discom
	SECI	
State Govts/ Utilities/Discoms		<ul style="list-style-type: none"> • Techno commercial submission and online auction • Generally Non Solar Park Model • 25 year PPA with state discoms/renewable agency

High and low winning tariff for recent tenders



- Most recent RA in 2017 were Rewa – **3.30 INR/kWh** (levellised), Kadapa (AP) – **3.15 INR/kWh** & Bhadla – **2.62 INR/kWh**
- SECI was the implementing agency for first wind tender. Tender closed at INR 3.46 which was **~17% lower** than the **lowest prevailing Feed in Tariff**

Tender Summary

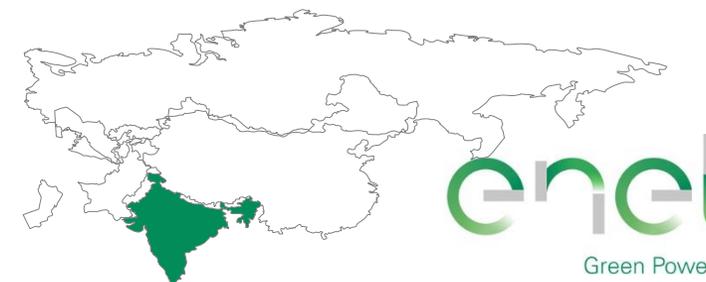
India – Rewa 750 MW PV Tender at record low tariff of INR 2.98/kWh



Description	<ul style="list-style-type: none">• 750 MW (3 Units x 250MW) PV Tender in Rewa, Madhya Pradesh by RUMSL (Rewa Ultra Mega Solar Limited) – Implementation Agency• RUMSL – 50:50 JV between SECI (Solar Energy Corporation of India) & MPUVNL (Madhya Pradesh Urja Vikas Nigam Limited) - State Renewable Nodal Agency• Solar Park Model with Reverse Auction process – Land, Evacuation and other Infrastructure being developed by RUMSL• Tariff based competitive bidding
Timelines	<ul style="list-style-type: none">• Submission – January 2017• Reverse Auction – February 2017• PPA Signing – March-April 2017• COD – 18 Months from PPA
PPA	<ul style="list-style-type: none">• MPPMCL (Madhya Pradesh Power Management Company Limited) - Capacity based PPA (200 MW)• DMRC (Delhi Metro Rail Corporation) – Energy Based PPA equivalent to 50 MW (Long term Inter State Open Access Agreement)
Connection	<ul style="list-style-type: none">• Pooling Substations (220/33 kV) – 3 nos. 1 dedicated for each 250 MW unit. Developed and owned by RUMSL. Design and Contracting by MPPMCL MP State Transmission Company• Main Substation (400/220 kV) – Single unit being developed by PGCIL (Power Grid Corporation of India Limited) as part of Inter State Transmission System
Main Highlights	<ul style="list-style-type: none">• Funded by World Bank• Transaction Advisory by International Finance Corporation• Power Evacuation into central transmission network part of National Green Energy Corridor• PPA with an escalation of INR 0.05/kWh/Year till 15 years.• PPA backed by State Payment Guarantee.

Bidders exposure after Bid Submission

India – Rewa 750 MW PV Tender



Guarantee	Set-up day	Amount/MW (For 250 MW bid)	Duration
Bid bond	Bid Submission	0.016 MUSD/MW (4 million USD)	Validity – 90 Days (Returned after Reverse Auction in case of Bidder does not win)
Performance Bond	Awarding date/PPA Signing	0.028 MUSD/MW (7 million USD)	Up till COD
	Awarding date/PPA Signing	0.018 MUSD/MW (4,5 million USD)	Up till COD + 1 Year

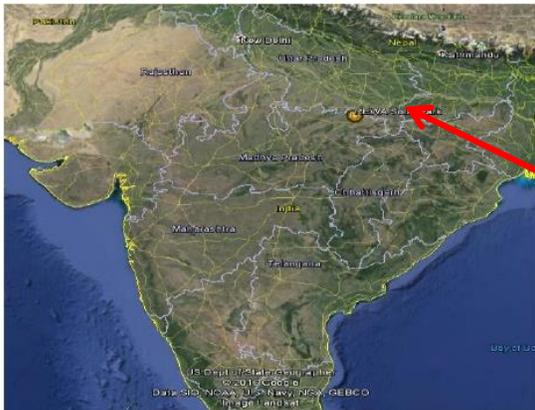
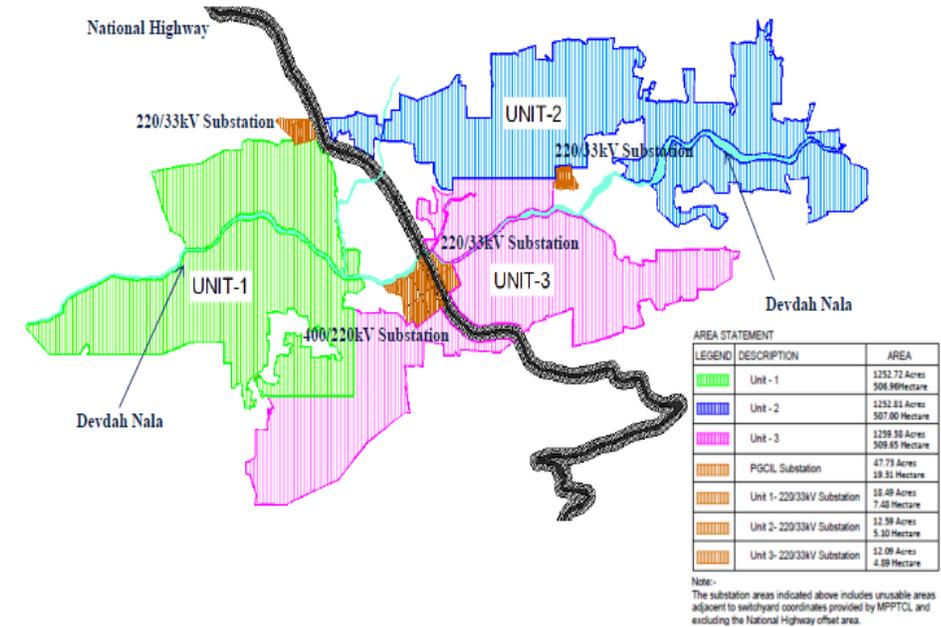


Project Selection

Preselected site and connection



- **Site specific information are provided to the Bidders by the authority in the RFP:**
 - boundary coordinates of the site area including CAD files;
 - grid connection solution including details on connection works, costs and responsible party;
 - geotechnical, hydrological and topographical reports;
 - site specific road map of permits, including timeline and responsible party;
- **Bidders are allowed to perform site visit**
- **Bid Submission is usually 1.5 months after RFP issuing**



India First Wind Tender

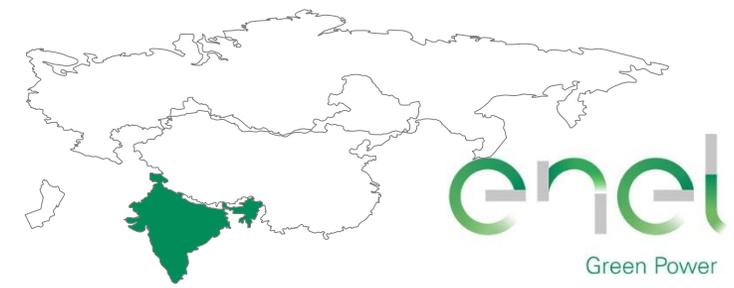
1 GW capacity auctioned at record low tariff of INR 3.46/kWh



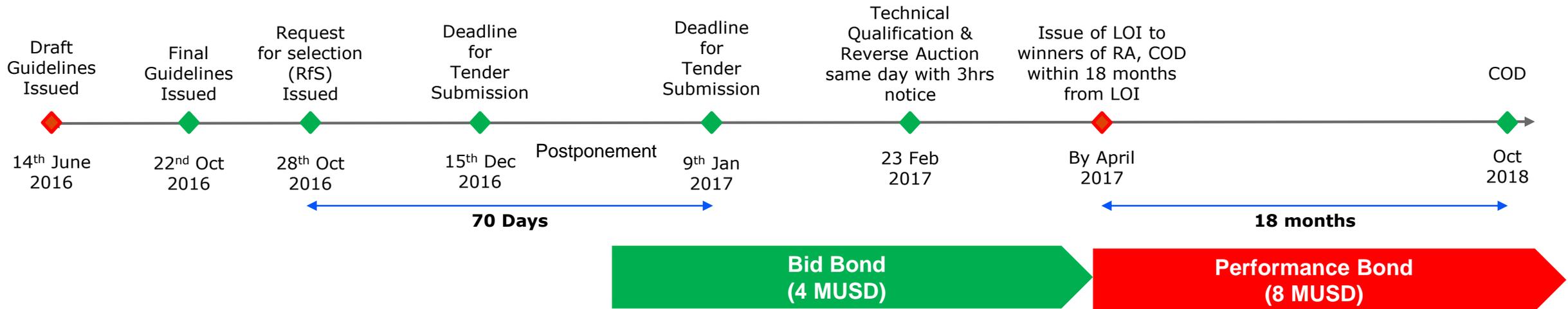
Capacity	1000 MW , single player can bid minimum 50 to maximum 250 MW
Bid submission	First Round: 9 th Jan. Reverse Auction: 23 rd Feb
COD	2018-2019 (18 months from signing of Letter of Intent)
PPA	PPA for 25 years at levelized tariff (no inflation or indexation) with Power Trading Co (PTC, Govt. of India undertaking). PTC to sign back to back PSA (Power Sale agreement) with DISCOM. No deemed power, no compensation for grid problems
Tender Details	<ul style="list-style-type: none">▪ Interconnection at Central Transmission Utility (CTU) while 95% of projects in India have been developed for State Transmission. STU connection possible but bearing relevant transmission charges (which are different for each state)▪ First round submission on Jan 9th (70 days from RfQ). 95% of bids around just two CTU substations in Gujarat and Tamil Nadu.▪ Total MW bid : 2600 MW (2,6X oversubscribed)▪ Preferred States : Tamil Nadu (1750 MW) and Gujarat (750 MW) due to high EOH (3300-3500) and CTU availability▪ New tenders expected at central and state level in H1 2017
Tender Results	<ul style="list-style-type: none">▪ Aggressive bidding by OEM's and IPP's resulted in record low tariff of INR 3.46; 16% lower than the lowest Feed in Tariff (INR 4.15 per unit) prevailing at that time▪ Tariff discovery resulted in all state governments stopping signing of new PPA's and coming up with guidelines for procurement of RE through competitive bidding route

Bidders exposure after Bid Submission

India – First Wind Tender 1000 MW



Guarantee	Set-up day	Amount/MW (for 250 MW bid)	Duration
Earnest Money Deposit (Bid bond)	Bid Submission	0.016 MUSD/MW (4 million USD)	9 months (returned after completion of Reverse Auction)
Performance Bank Guarantee	On issue of Letter of Intent to winner of RA	0.032 MUSD/MW (8 million USD)	2 years: returned post commissioning of the project



*Exchange Rate USD=INR 65

Project Selection

Site and inter-connection to be selected by Bidders



- **Bidders are required to develop their own projects:**

- Focus on high wind areas, most of the projects bid were in 2 states of India (Gujarat and Tamil Nadu)
- obtain relevant permits and approvals from state nodal agencies
- Projects to be connected to CTU, getting the approvals for evacuation and wheeling of power (Long Term Open Access) was the responsibility of bidder

**IPP's
bidding
using own
site**

- IPP's having existing pipeline and close to CTU sub-station used their own sites for bidding
- This gave them a competitive edge in terms of preparedness and negotiation with OEM's
- However as most of the existing pipeline was designed to connect to State Transmission Utility sub-station; hence many IPP's were not ready with their sites

**OEM's
bidding
directly or
with IPP's**

- OEM's (Gamesa and Inox) bid without tying up with IPP's. Inox won 250 MW; Gamesa stopped short of the winning tariff
- Some OEM's entered into pre-bid agreement with IPP's
- As the margins are very thin, there is an inclination to tie up before with IPP's

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Closing Remarks



- Competitive auction is an effective and efficient mechanism to attract private investment in **large-scale renewable generation** (However, auctions cannot start from scratch..)
- Long-term planning as well as a **consistent long-term signals** is important from the government
- Competitive pricing depends not only on the level of competition but also on the **terms of the PPA** and other contractual terms
- Alignment with **grid infrastructure buildout** is a key factor



Thank You

