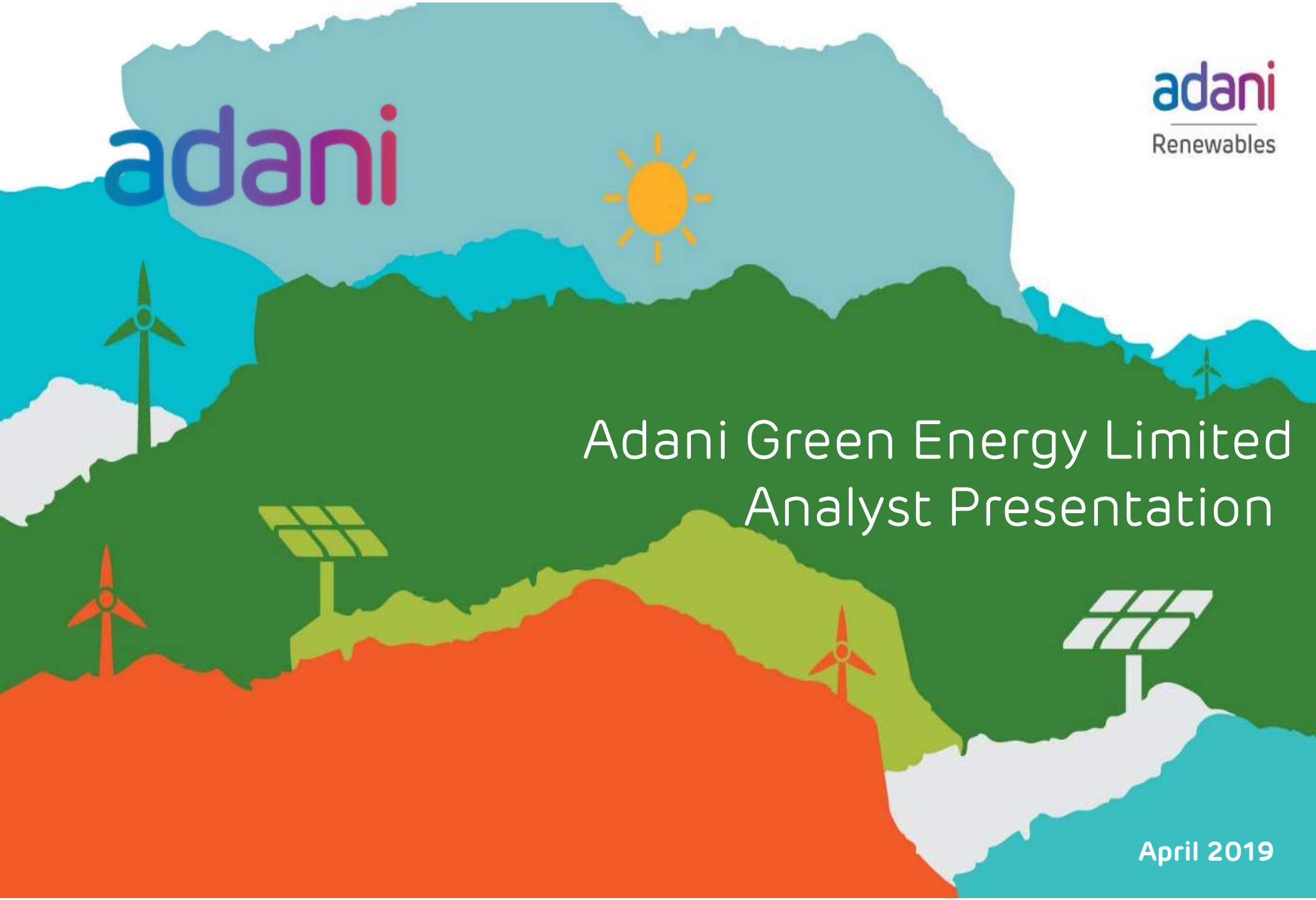
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Renewables
Adani Green Energy Limited
Analyst Presentation
April 2019

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1.Adani Group

1.Adani Group

A. About Adani Group

Leading Infrastructure Conglomerate in India

Founded in 1988 by Mr Gautam Adani, Adani group has interests in power generation, coal mining, trading, ports operations, logistics

Sh Gautam Adani
Chairman, Adani Group

4,560 MW Among Largest Renewable players in India

13,464 ckm Largest Private Transmission Player

205 MMT Largest Ports Player in India

	74.97%*	74.92%*	74.92%*	62.30%*	86.50%*	74.80%*
	Adani Power	Adani Transmission	Adani Enterprises	Adani Ports	Adani Green Energy	Adani Gas
	– #1 private IPP in India – Total installed capacity - 10,440 MW – Large assets include Mundra – 4,620 MW, Udupi Power (1,200 MW) & Tiroda (3,300 MW)	– #1 private power transmission & distribution company in India – Owns and operates portfolio of 13,464 ckms of transmission assets in India – ~ 2.9 mn consumers – Investment Grade – rated internationally	– #1 coal trader, MDO, solar manufacturing[2] player in India – #1 edible oil player in India, 50:50 JV with Wilmar International Limited – Owns coal assets in Australia	– #1 private port player in India – Operates 10 large ports in India including the Mundra Port – largest non major port in India – Handled 180 MMT (15% of India's cargo) in FY18	– Total renewable capacity of ~4.6 GW – Solar – 2.9 GW – Wind – 1.7 GW – Developed and operates then largest solar power plant in the world – 648 MWAC in Tamil Nadu	– Largest Private Player in gas distribution, ~ 17% market share in City Gas Distribution – Customer Profile – 1,300+ industrial – 0.33 mn residential – 2.3K+ commercial – 70+ CNG stations
Revenue[1]	21,093	4,055	37,984	12,334	1,882[1]	1,393
EBITDA[1]	6,174	2,937	2,913	8,072	1,700[1]	373
Mkt Cap	18,494	23,909	16,123	78,654	5,802	14,187

Combined mkt cap > INR 157,000 cr, infrastructure conglomerate with 2 IG rated companies

*Shareholding as on 29th March 2019, Balance held by public;
Market Cap data as on 29th Mar 2019; All nos in INR Cr
1. FY18 performance for group cos; AGEL 9M nos annualized, 2. AEL holds the cell and module manufacturing facility located in Mundra

Case Study : AEL Value Creation ~ 30% CAGR over 25 Yrs

IPO in Nov 1994	In 10 yrs from IPO	In 20 yrs from IPO	After 2015 group restructuring	As on Date
Adani Enterprises – 1 share worth Rs.150/-	Adani Enterprises – 40 shares (supported by Bonus & Splits)	Adani Enterprises – 80 shares (supported by Bonus & Splits)	Adani Enterprises – 80 shares APSEZ – 113 shares APL – 149 shares ATL – 80 shares	Adani Enterprises – 80 shares APSEZ – 113 shares APL – 149 shares ATL – 80 shares AGEL – 61 shares AGL – 80 shares

Rs.150/- in Nov 1994 → 29.0% CAGR → Rs.93,000/- in Apr 2019

BSE Sensex @4124 in Nov 1994 → 9.6% CAGR → BSE Sensex @38,684 in Apr 2019

Adani Enterprises Limited (the first listed group company) has delivered exceptional returns over the years unlocking great value and returns for its shareholders

The above analysis has excluded all annual dividend pay-outs by AEL and APSEZ

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1.Adani Group

B. Project Execution

Track Record of Delivering World Class Assets

Leveraging Core Strengths

- ✓ Large scale businesses delivering consistent growth
- ✓ Unmatched execution capabilities – timely and cost effective
- ✓ Three decades of regulator and stakeholder relationship across the energy sector
- ✓ Diverse financing sources – only Indian infrastructure conglomerate with two Investment Grade (IG) issuers

Delivering World Class Assets

648 MW Ultra Mega Solar Power Plant

- **Mega project developed, constructed and commissioned in 9 months**
- Location: Kamuthi, Tamilnadu
- Solar Irradiation: 1,900 kWh / m^2 / year
- Capacity: 1.25 BU / year

India's Largest Commercial Port

- **Largest commercial port of India**
- Location: Gulf of Kutch with access to northern and western parts of India
- Capacity: 100 MMT cargo / year

Largest Private Thermal Power Station in India

- **Fastest implementation ever by any power developer in India - record completion of inception to synchronization within 36 months**
- Location: Mundra, Gujarat
- Capacity: 4,620 MW

Longest Private HDVC Line in India

- **Only HDVC line in India to be executed by a private player**
- Location: Mundra-Mohindergarh
- Capacity: 1,980 Ckt Kms

Our execution capabilities are exemplified by the world class infrastructure assets constructed by the group

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Mastered skill of executing complex infrastructure projects

- Adani Group's "Execution Engine" available to all Adani Group Companies
- Group has executed projects across multiple infrastructure sub-segments on a pan India level with strong presence in energy sector

1

RoW/Land Acquisition

- Experience in land acquisition for large and complex infrastructure projects across multiple locations in the country

2

Regulatory Clearances

- Touchpoints with multiple regulatory bodies for timely clearances and approvals

3

Sourcing of Materials

- Strong relationships will all major OEMs, EPC contractors, BOP contractors as well as local vendors across infrastructure segments
- High quality asset build

4

Long Term O&M

- High quality asset build + long term asset owner/operator mindset drives our O&M philosophy
- Operate our assets at world class standards

All group companies enjoy the benefits of strong sponsor support and execution capabilities

1.Adani Group

C. Adani Group Energy Presence

Largest Integrated Energy Player in India

End to End Integration in the Energy Value Chain

Coal Business

- Largest importer & trader of Coal in India
- Coal MDO Business

Largest coal trader/contract miner in India

Panel Manufacturing

- **1.2 GW production capacity** of Solar PV cells & modules

Largest Solar cell & module manufacturer in India

Thermal Power

- Installed capacity - 10,440 MW
- Developed 4,620 MW Mundra – largest single location project in Asia

Largest private sector thermal power producer in India

Renewables

- ~2 GW operational ,~2.6 GW UC
- Associated transmission lines - 245 ckms operational, 827 ckms UC

Largest Solar power developer in India

Solar Park

- ~2GW 50:50 JV with Rajasthan State Government

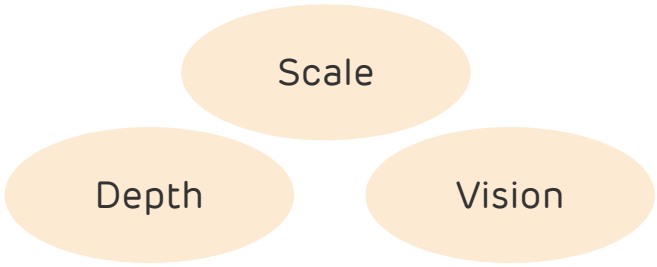
Large Scale Solar Park

Trans. & Distribution

- Owns & operates **13,464 ckms**
- License for Mumbai distribution **– 2.9 mn consumers**
- Gas retail and distribution

Largest private sector T&D business in India

INPUT RESOURCE/EQUIPMENT | GENERATION | DISTRIBUTION, TRANSMISSION, UTILITIES



- Track record of developing large scale projects
- Integrated energy business
- Hold to Maturity investor, build to own for life approach
- Returns focused approach

Integration across energy value chain equips Adani Group with understanding of regulatory framework & focus on growth and returns

UC – Under Construction, PV – Photo Voltaic, MDO – Mine Development cum Operator, ckm – Circuit Kilometers, T&D – Transmission and Distribution, JV – Joint Venture

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Key Stakeholder touchpoints across energy landscape in India

Ministry	**Ministry of (conventional) Power (MoP) / Ministry of New & Renewable Energy (MNRE)**	
Advisory	**Central Electricity Authority of India (CEA)** Advisory arm of MoP on matters relating to the National Electricity Policy and formulating plans for the development of the sector	
Regulatory	**Central Electricity Regulatory Commission (CERC)**	
	State Electricity Regulatory Commission (SERC)	
Statutory	**National Load Dispatch Center (NLDC) / Regional Load Dispatch Center (RLDC)**	
	State Load Dispatch Center (SLDC)	
Transmission & Distribution utilities	**Central Transmission Utility (CTU) / State Transmission Utility (STU)**	
	State DISCOMs, We also own Mumbai Distribution Business	
Dispute Resolution	**Appellate Tribunal for Electricity (APTEL)**	

Group has relationships / touchpoints across all regulatory bodies, policy making arms, dispute resolution and government entities in the energy sector value chain through its generation business, transmission business and distribution business

DISCOMs – Distribution Companies

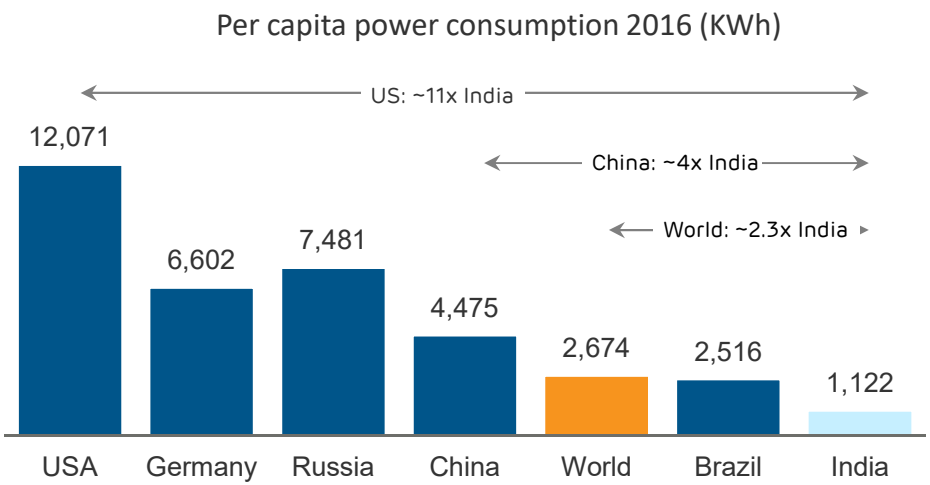
2.Adani Green Energy

2.Adani Green Energy

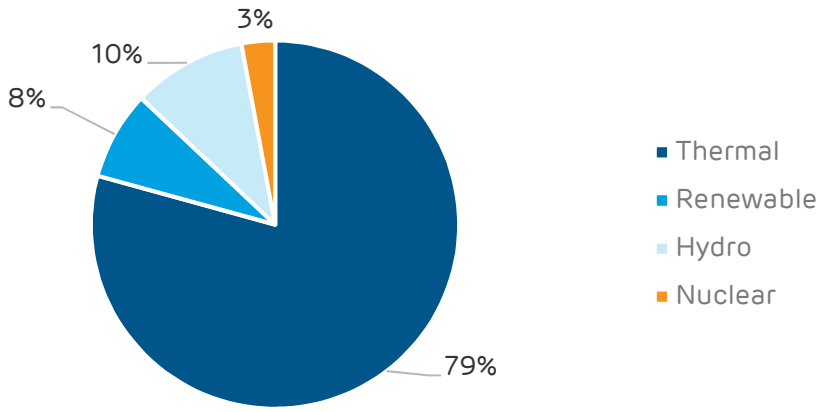
A. Industry Overview & Growth Drivers

Industry Overview (1/2)

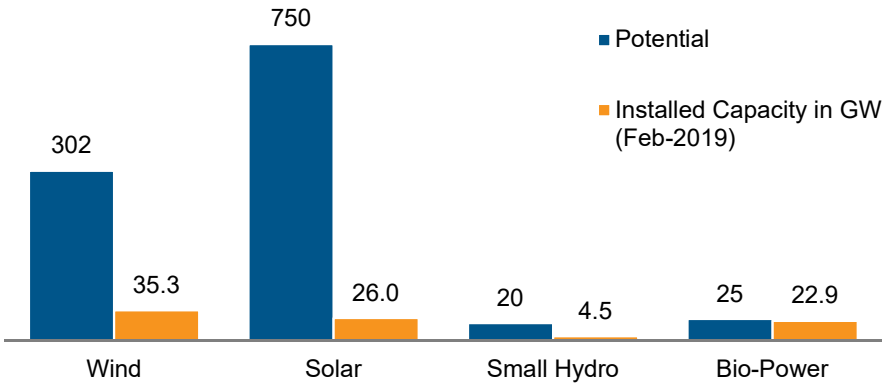
India has significant headroom for power consumption growth



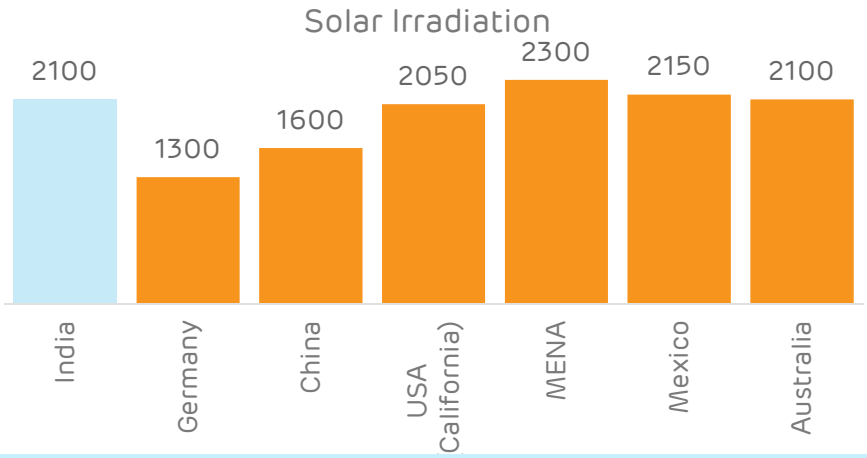
Renewables' overall share in power generation remains low



Solar and wind resources remain untapped



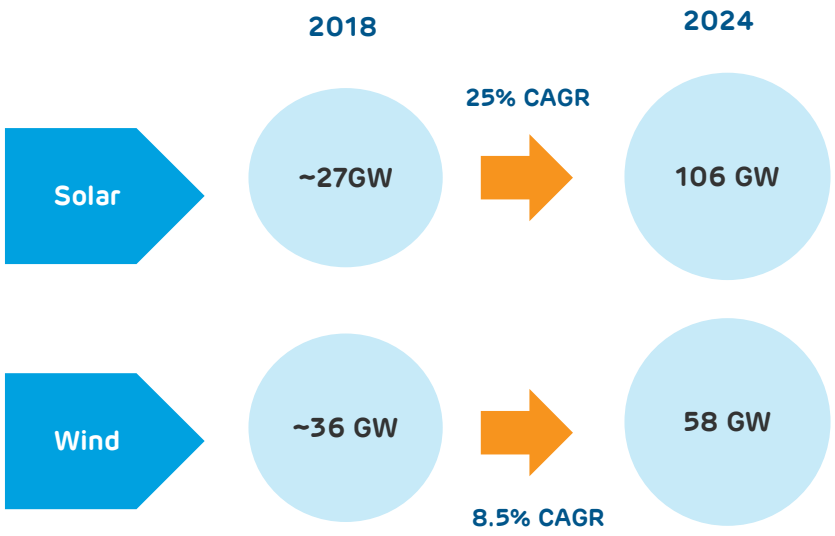
India – Solar Advantage



Lower share of renewable energy and higher potential provide opportunities for growth in the renewable sector

Industry Overview (2/2)

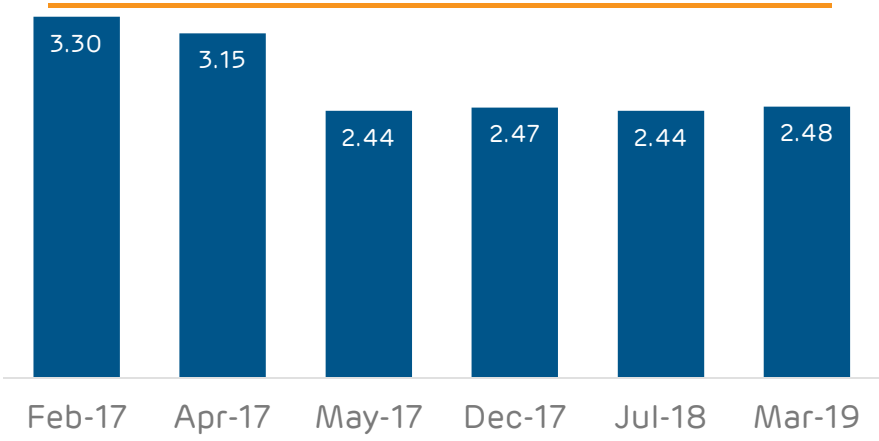
India's Renewable Road Map



To achieve the target as mentioned above, it is estimated that ~USD 100 billion would be invested in the renewable sector

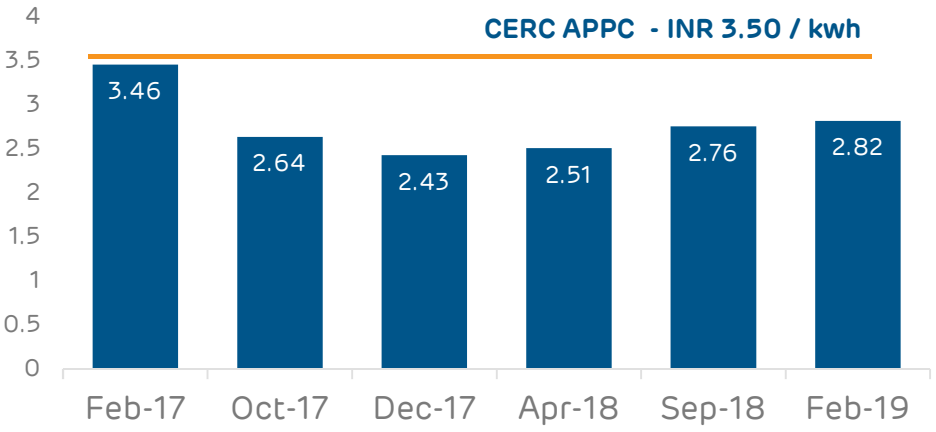
Growth Drivers – India achieves Grid Parity - Solar

CERC APPC - INR 3.50 / kwh



Growth Drivers – India achieves Grid Parity - Wind

CERC APPC - INR 3.50 / kwh



With tariffs in renewable sector below CERC APPC, incentives for discoms to purchase renewable power increases

APPC: Average Power Purchase Cost

Solar Sector – Paradigm Shift and Our Response

	Past Dynamics of the sector	What has changed today
Project Setup / Technology	– Solar penetration was only driven by **RPO obligations** – Higher plant setup costs, O&M costs, technology in evolvement stage	– Technology and efficiency improvement, **decrease in module prices by ~ 60%** – Improvement in plant design leading to increase in utilization reducing tariff
Project Size / Investors	– Project sizes used to be small – Project development done by **small players**, no major infrastructure players involved	– Decreasing costs promoted states to invite **larger size bids** (~ 100 MW). – **Strategic players** entered the sector leading to **economies of scale** for capex and opex
Project Locations	– Projects were being set up only in States which supported **purchase of higher power cost** – These States were not necessarily best locations for Solar resources	– Bids based on ISTS substations led to **discovery of good resource areas** – **Development of solar parks** with ready land and evacuation made sector attractive for foreign players (lower cost of capital)
Power Purchase Cost	– Higher Capital Cost led to higher tariffs and resulted in **lower purchase by DISCOMs as purchase of solar power increased APPC**	– **Tariffs lower than APPC** due to technological improvement incentivizing DISCOMs to buy more solar power – **Non inflationary nature of tariff** will provide incremental benefit over PPA life

Our Response

- AGEL participated in exponential growth of Solar Sector in India, retaining focus on returns
- **Complete value chain capture** - In house design and engineering, procurement through strategic partners, project management, land acquisition as well as O&M through cutting edge technology
- Sites identified based on parameters like resource, land cost, policy, evacuation and potential upcoming bids

RPO: Renewable Purchase Obligation

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Wind Sector – Paradigm Shift and Our Response

	Past Dynamics of the sector	What has changed today
FIT Tariff Basis	– FIT was largely based on CUFs and existing WTG models being supplied by OEMs – So, **no incentives with OEMs to introduce new and better machines**	– In 2017, majority bids were invited based on ISTS substations and tariff started coming down – The **lower tariff pushed the OEMs to introduce new and more efficient WTGs**, sites
Type of Investors	– Due to the small size of projects, majority of them were sold as **financial investments** – Hence, no major focus on performance parameters like CUF, O&M costs, etc.	– Due to increase in size of bid, new energy players entered sector as **strategic investors** leading to more focus on performance parameters
Project Locations	– Initially, projects were in areas where Grid Infrastructure was present, so some projects were not at best places resource wise – **No inclination to discover new and better sites**	– Unexplored Good wind resource areas having ISTS network are being tapped into – **ISTS looking to develop more transmission infrastructure to tap "New Wind Zones"**
Power Purchase Cost	– No opportunity to purchase lower cost wind power from ISTS due to lack of framework – **Higher PPC led to power purchase in small capacities**	– Instead of buying wind power from project located within the same State (mostly costlier power), **power is bought from best wind States through the ISTS network (cheaper power)**
Margins	– OEMs were doing shadow price based on returns to financial investor and their WTG costs and margins were fully opaque	

Our Response

- Developing sites by identifying resource rich areas through wind campaigns run with ~50 Wind Masts, more in pipeline
- Sites identified based on parameters like resource, land cost, policy, evacuation and potential upcoming bids
- Developed in **house O&M capability**
- Developed capabilities for **in-house EPC of Wind projects** and only source WTGs from OEM, leading to optimized LCOE

ISTS: Inter-State Transmission System

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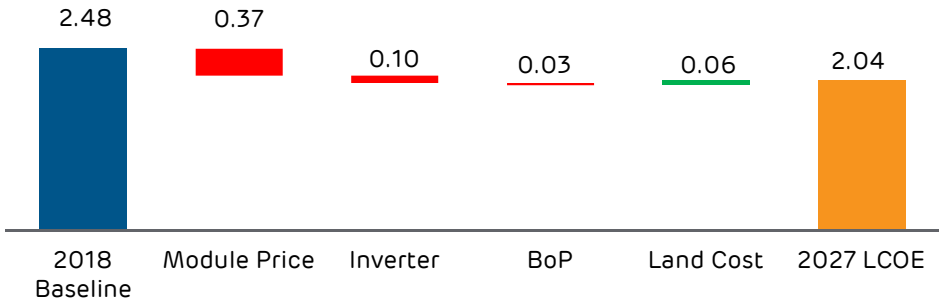
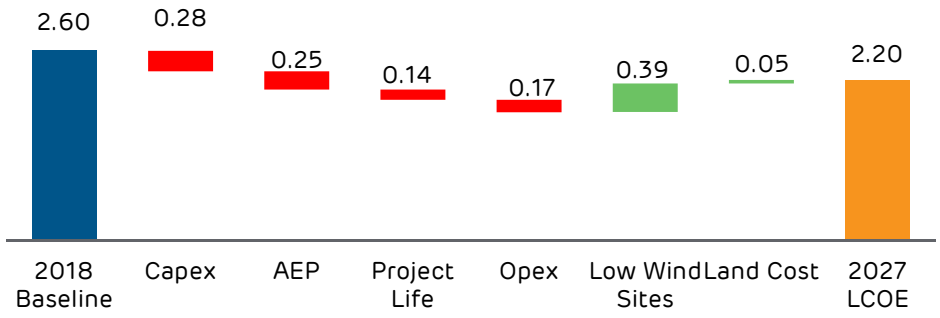
Competitive delivered cost of renewable power

Solar LCOE Drivers



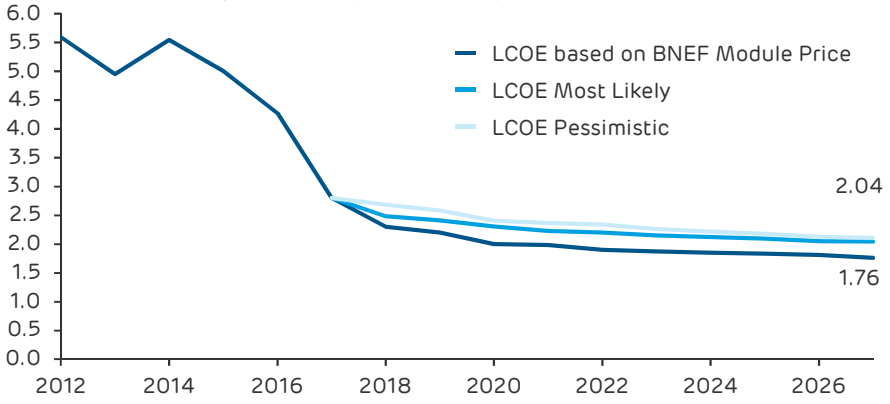
- Current LCOE for Solar is INR 2.48 / unit
- Including the transmission charges of INR 1.0 / unit, the total landed cost for Solar is ~ INR 3.48 / unit
- LCOE of Solar is expected to fall in line with decline in module price

Wind LCOE Drivers

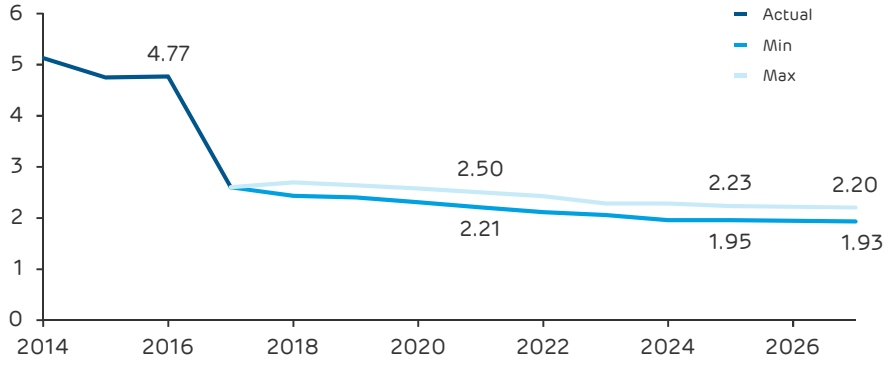


- Current LCOE for Wind is INR 2.60 / unit
- Including the transmission charges of INR 1.0 / unit, the total landed cost for Solar is ~ INR 3.60 / unit
- Technological improvement in Wind turbine will reduce LCOE of wind

Solar LCOE Projections (INR / kwh)



India Wind Power tariff trend (INR / kwh)



Source: Internal Estimates & Industry Reports

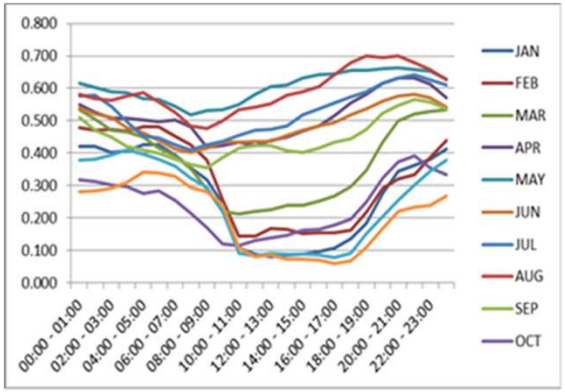
Hybrid technology driving RTC Solution

- In Dec 2018, SECI conducted the first successful wind solar hybrid auction for 1,200 MW in the country
- AGEL and Softbank backed SB Energy were the only 2 bidders in the auction and won 840 MW of the 1,200 MW
- **AGEL won 390 MW at INR 2.69 / unit in auction**

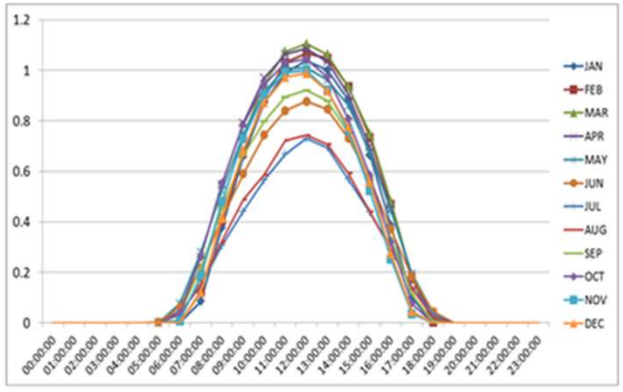
Key Considerations for Hybrid

- Solar and Wind Power Plants characteristically generate power at different intervals and during complementary seasons
  - This helps to ensure that the level of energy being fed into the grid is steadier than that of Wind or Solar PV power plants alone
  - The probability of Peak Solar and Wind resource occurring simultaneously at a particular location is very small, thus reducing the possibility of undesirable power peaks
- Key Advantages include
  - Better utilization of grid and infrastructure
  - Lower generation variability due to hybridization
  - Better utilization of land
- Certain sites like Kutch (Gujarat) are endowed with both solar and wind resources making them suitable for hybrid projects

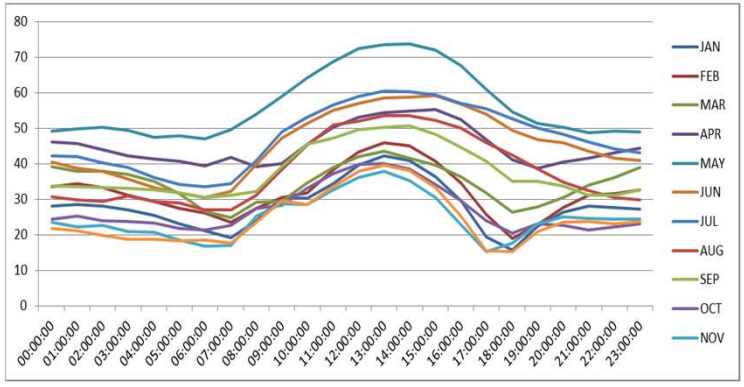
Pattern of Solar and Wind Resource across day



WIND RESOURCE



SOLAR RESOURCE



Wind solar hybrid generation at typical hybrid plant *

Due to characteristic nature of the solar and wind energy, hybrid technology ensure round the clock availability

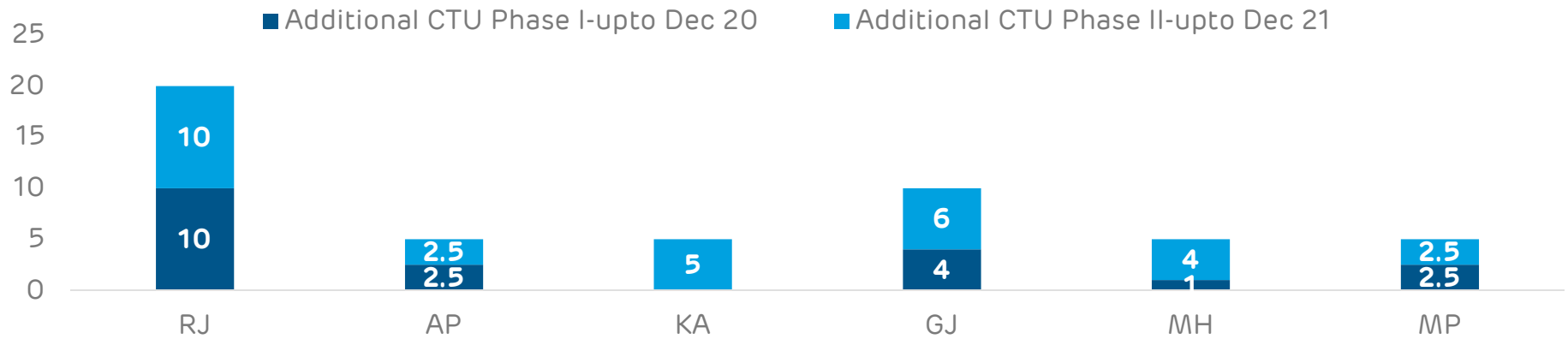
* AGEL internal simulation based on 1.6:1 solar wind ratio

2.Adani Green Energy

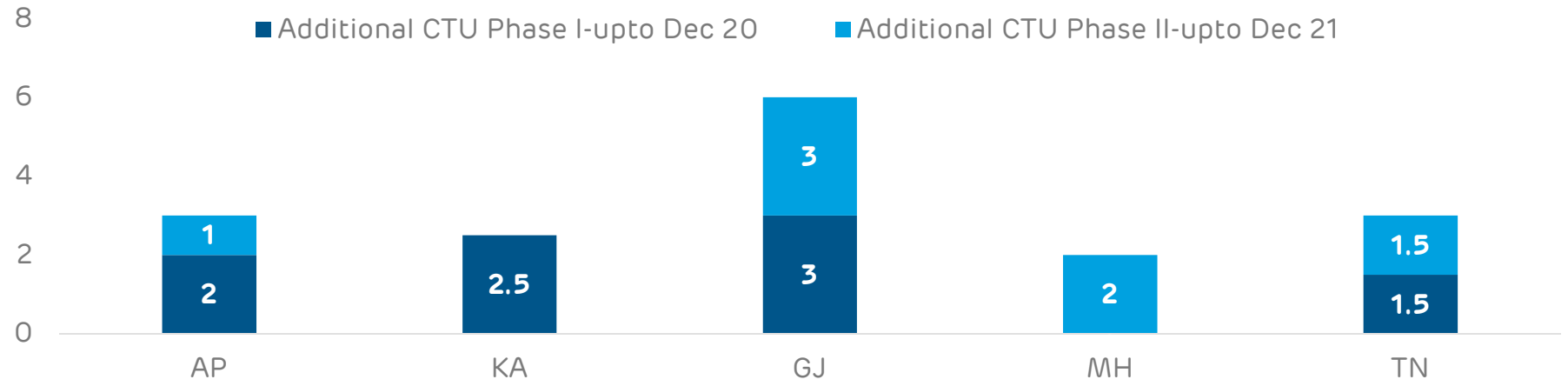
B. India's Grid Infrastructure will be able to Integrate the Targeted 175GW of Renewable Capacity

Proposed grid addition to absorb upcoming renewable capacity

Proposed CTU for 50 GW of incremental Solar



Proposed CTU for 16.5 GW incremental Wind



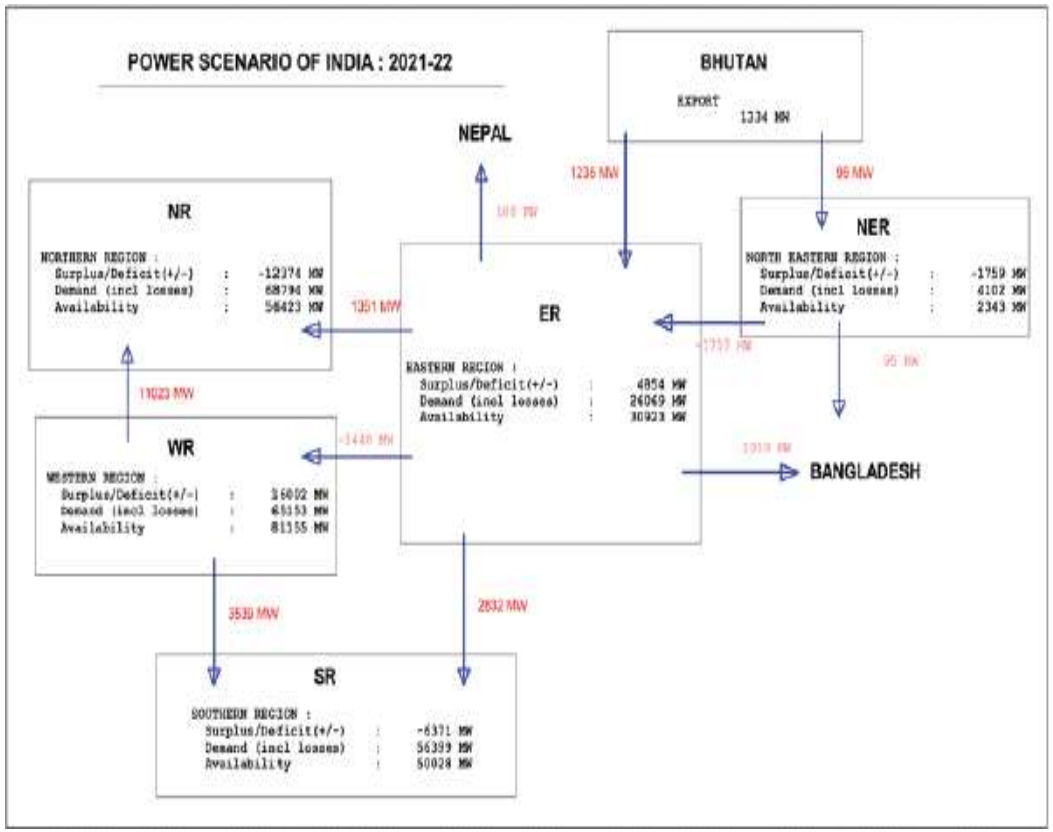
Source : Central Electricity Authority 2nd National Committee on Transmission (NCT) report.

Scenario with Integration of 175 GW Renewable power (by FY 2021-22)

Central Electricity Authority (CEA) recently conducted a study, and demonstrated that it is feasible to integrate the new renewable capacity, with various options

Inter-Regional power flow during Peak demand (FY 2022)

- WR and ER will have surplus of ~16 GW and ~5 GW resp.
- NR and SR will have a deficit of ~12.5 GW and ~6.5 GW, resp.
- ~11 GW power will flow from WR to NR against available capacity of ~36.5 GW
- ~3.5 GW and 3 GW will flow from WR and ER to SR, resp. against available capacity of ~24 GW and 7 GW resp.



Load flow studies for peak as well as off-peak conditions with RE integration shows that there is no congestion in the 400 kV and above system of the National grid

Source : CEA report on Flexible Operation of thermal power plant for integration of renewable generation – Jan'19

NR: Northern Region; ER: Eastern Region; WR: Western Region; SR: Southern Region; NER: North Eastern Region

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Integration of 175 GW Renewable power -
Without any burden on exchequer (Option 1)

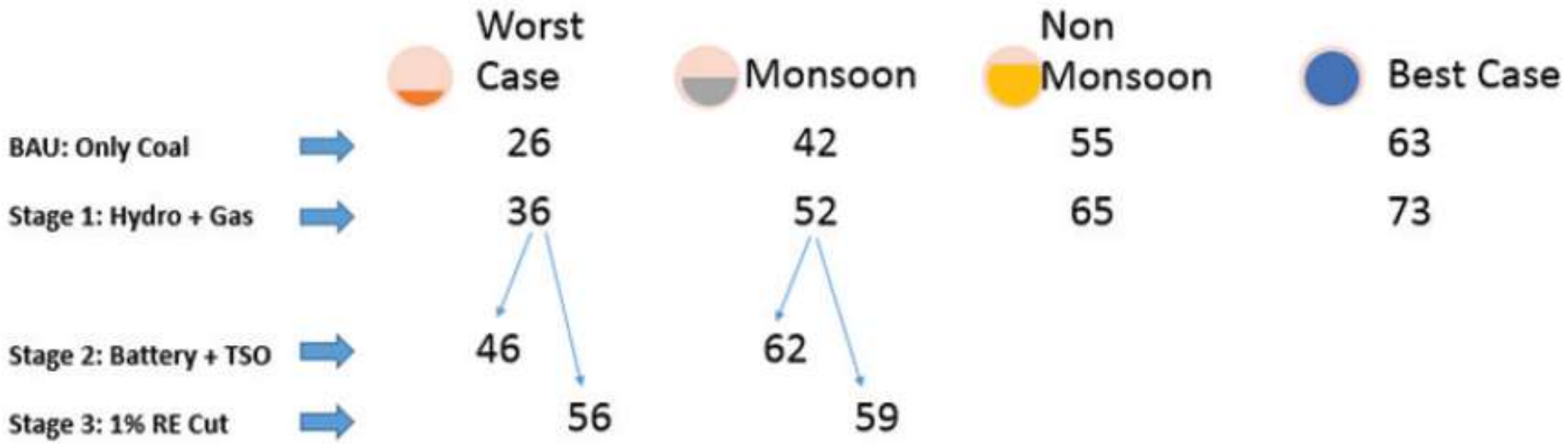
Grid balancing with Flexible Operation

Step 1 - Reallocation of Hydro and Gas plant generation to peak hours

Step 2 - Flexible power from Battery Storage

Step 3 - Curtailment of Renewable Energy Source

Minimum Thermal Load (MTL) under various season/case



With 1% curtailment of RE power, Thermal power plant can operate at Technical Minimum load of 55% without any commercial burden on the System operator/DISCOM.
Alternatively mandatory establishment of battery storage of 2.5% of daily energy generation at solar or wind plants will avoid the curtailment of RE power.

Source : CEA report on Flexible Operation of thermal power plant for integration of renewable generation – Jan'19

BAU: Business as Usual; TSO: Two Shift Operation

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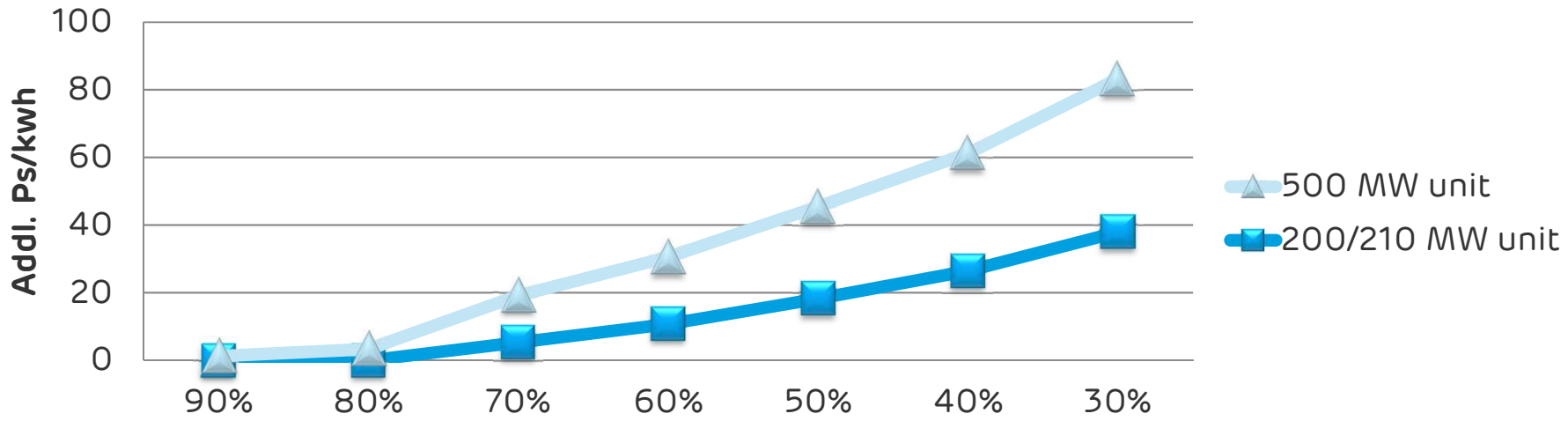
Integration of 175 GW Renewable power -
With additional compensation to Thermal power plants (Option 2)

Grid balancing with Flexible Operation of Thermal Power plant without RE curtailment

Flexible operation of Thermal power plant below technical minimum will lead to following:

1. Increase in Net Heat Rate
2. Life Consumption leading to increased O&M cost
3. Increased Oil consumption due to frequent Start/Stop.

Summary of Additional Operational cost to Thermal power plant



With additional cost upto 50 Paise/kwh to Thermal power plants, large scale integration of RE power is possible without any curtailment.

Source : CEA report on Flexible Operation of thermal power plant for integration of renewable generation – Jan'19

2.Adani Green Energy

C. Current Solar PV Technology allows plant life well beyond the PPA life of 25 years

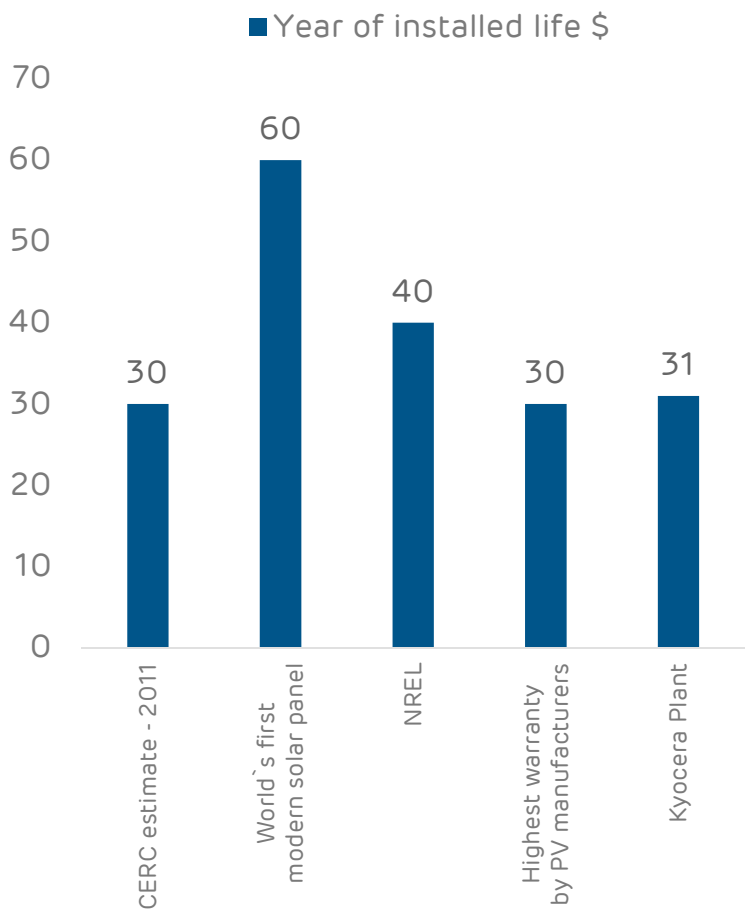
Solar PV modules have a life well beyond the PPA life of 25 years

What is Module Degradation?

- ❑ Light Induced Degradation (LID), permanently degrades modules starting from the first ray of solar radiation and extends further up to six months
- ❑ Annual Degradation – Efficiency of solar modules reduces gradually during the module life due to environmental conditions

AGEL's Experience

- Degradation depends on quality of the cells used, manufacturing process and O&M practices
- We procure our modules from Tier-1 manufacturers
- Better O&M practices aided by string level analytics capability of the string inverters in most of our plants has made us achieve degradation lower than that mentioned by the manufacturer
- Generally, at the end of 25 years (design module life), module manufacturers guarantee 80% of nameplate efficiency



Global Experience

Compendium of photovoltaic degradation rates by Jordan et al:

"**At the time of writing this report, <u>more than 30 studies of systems older than 20 years have been reported, with some 30 years and one even approaching 40 years</u>"[1].**

Solar PV modules have a life well beyond the PPA life of 25 years

[1] Jordan, D, Kurtz, S, VanSant, K and Newmiller, J 2016, *Compendium of photovoltaic degradation rates*, Progress in Photovoltaics

$ NREL, CERC, https://energyinformative.org/lifespan-solar-panels/ https://www.kyocerasolar.com/about/

2.Adani Green Energy

D. Management & Project Execution Capabilities

Strong sponsor & professional management with strong execution track-record

Professional Management Team

Jayant Parimal
CEO

- Mr. Jayant Parimal has been associated with the group since 2015
- Prior to this, he was with Reliance Industries as President (Special Projects) in Mumbai
- An IAS officer (1989 batch), has done B.E. in electrical engineering in 1988 from MNIT, Allahabad, CFA in 2002 from ICFAI, Hyderabad; Masters of International Law & Economics in 2004 from World Trade Institute, Bern and L.L.B. in 2007 from Gujarat University
- Worked in various capacities with Government of Gujarat and Government of India till 2006

Ashish Garg
CFO

- Mr. Ashish Garg has been with AGEL since June 2017
- He is a Chartered Accountant with ~ 20 years of experience in renewables, metals & mining and oil & gas
- He has exposure in areas of fund raising, bond markets, budgeting, commercial negotiations and private equity
- Prior to this, he has worked with Essar Oil, Vedanta Resources, and Skeiron Renewables

Rajesh Shrivatsava
COO - Projects

- Mr. Rajesh recently joined the group in Jan 2019
- Mr. Rajesh has rich experience in Project management, engineering, planning and resource management in thermal, solar and gas based
- M. tech from IIT Bombay, he started his career with NTPC, then Toshiba, Lanco

Raj Kumar Jain
Head, Business Development

- Mr. Raj has rich experience in business development, M&A, corporate strategy, financing, risk management, PPA management and revenue realization
- Prior to this, he has worked with Vedanta group

Rakesh Shah
Head Regulatory

- Mr. Rakesh has ~ 27 years of experience in regulatory affairs and policy advocacy,
- Prior experience includes Sun Edison

Sunil Modi
Head O&M

- Mr. Sunil has ~ 25 years of experience in tech innovation, engineering
- Prior experience includes Essar Power, Regen Power

AGEL's Management team comprises of industry experts with rich experience in business, finance, regulatory domains

B.E. – Bachelor of Engineering, CFA – Chartered Financial Analyst, ICFAI - Institute of Chartered Financial Analysts of India, LLB - Bachelor of Legislative Law, MNIT - Malaviya National Institute of Technology, NTPC – National Thermal Power Corporation, PPA – Power Purchase Agreement, IIT – Indian Institute of Technology, M&A – Mergers and Acquisitions

Project Execution – Key Strengths

Land Acquisition

- Leverage experience of dealing land & other statutory permissions from other similar business activities such as Transmission & Real estate
- Identifying strategic land near substation to reduce cost of transmission line

Engineering

- Strong In-house design team with vast experience in Renewable & transmission
- Standardization & optimization achieved for various technologies and designs adopted for quick turnaround in engineering activities

Procurement

- Leverage on group strength of large vendor base with long relations
- Influence on Supplier's by virtue of large portfolio across group companies
- Strong procurement office based in China for better control on Chinese Vendors

Construction

- Strong In house team having strong knowledge base
- Centralized Project Controls using in house project management tools (SAP, Agile & pm software)
- Direct Contracts for higher degree of control on resources. No EPC contracts
- High Safety standards. Du Pont engaged in framing Group HSE guidelines

Backed by strong sponsor support, AGEL has expertise at all steps of project execution, from origination to commissioning

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Critical Success Factors for renewable project execution

1 Site Selection

- Grid Connection Facilities
- Land Acquisition
- Resource potential
- Site Accessibility
- Possibility of future development

2 PPA Tie-up

- Bidding/Bilateral negotiations
- Pre bid Site tie up is ideal
- Post bid, tight timeline for project execution

3 Project Execution

- Financial Closure
- Site Preparation
- Finalization of Vendors, EPC Work
- Project Management
- COD & Trial Run

Ability to identify site pre bidding helps in smooth project execution

EPC – Engineering, Procurement and Construction, COD – Commercial Operations Date

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Development Pipeline– Key Differentiating Factor for AGEL

20 GW Development Pipeline in Resource Rich areas

Expected Wind growth is supported by

- ~5 GW of wind sites under self development
- Land applied for 75% of identified area.
- Transmission Connectivity available for 1.8 GW
- 41 wind masts installed across multiple sites in India
- Use of leading turbine technologies to drive down the LCOE

Expected Solar growth is supported by

- ~9 GW of solar sites under self development
- Land applied for 95% of the identified area
- Transmission connectivity approval available for ~ 2.4 GW

- Ready sites to house future projects
- Large scale sites enable large single location project to be developed in multiple phases

Our Position	– Ideally positioned to win a significant portion of live and future bids

LCOE – Levelized Cost of Energy

Case Study 1 : Kamuthi Solar Project

Testament to our execution capabilities

- Adani Group has developed the 648 MW_{AC} (778 MW_{DC}), world's largest solar power plant at a single location spread over **2,340 acres** situated in Kamuthi, Tamil Nadu

- It was a mammoth execution **undertaken in less than 9 months**, of which **2 months featured the worst floods** in recent history of Tamil Nadu as against the next largest solar project in the world in 550 MW_{AC} California, took over 3.25 years to execute

- Due to the exceptional execution, the project was featured on **National Geographic special – Megastructures – India's Solar Power House**

2,340 acres land

380,000 foundations

2.5 mn solar modules

8,500 personnel

550 inverters

6,000 containers from 9 countries

Adani group's execution capabilities and coordination are exemplified by the megastructure – Kamuthi Solar Power Plant

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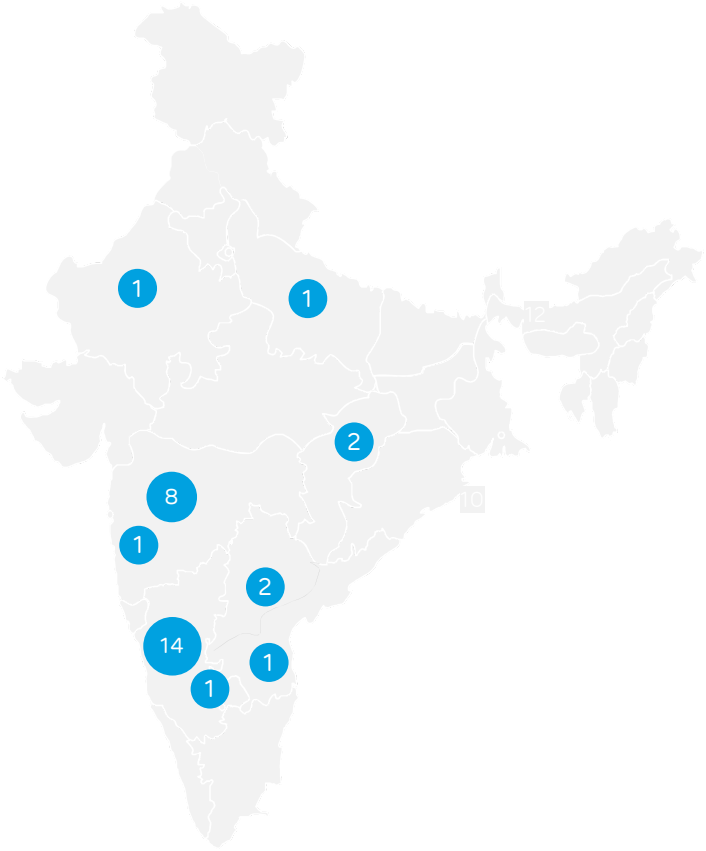
Case Study 2:
Executed 33 projects amidst regulatory changes

Number of UC projects during GST and demonetization



1 Demonetization
Nov – Dec 2016

2 GST
July 2017

Status of Projects during demonetization / GST

- **33 projects** were under construction during demonetization, GST
- These projects were spread across the country and involved interaction with **multiple stakeholders**

Issues due to paradigm shift

- Demonetization
  - **Land acquisitions** pertaining to the projects were on standstill because of uncertainty amongst sellers regarding cash transactions
- GST
  - Uncertainty in GST implementation led to delay in dispatch of equipment by our vendors (issuance of **GST compliant bills**)

Mitigations

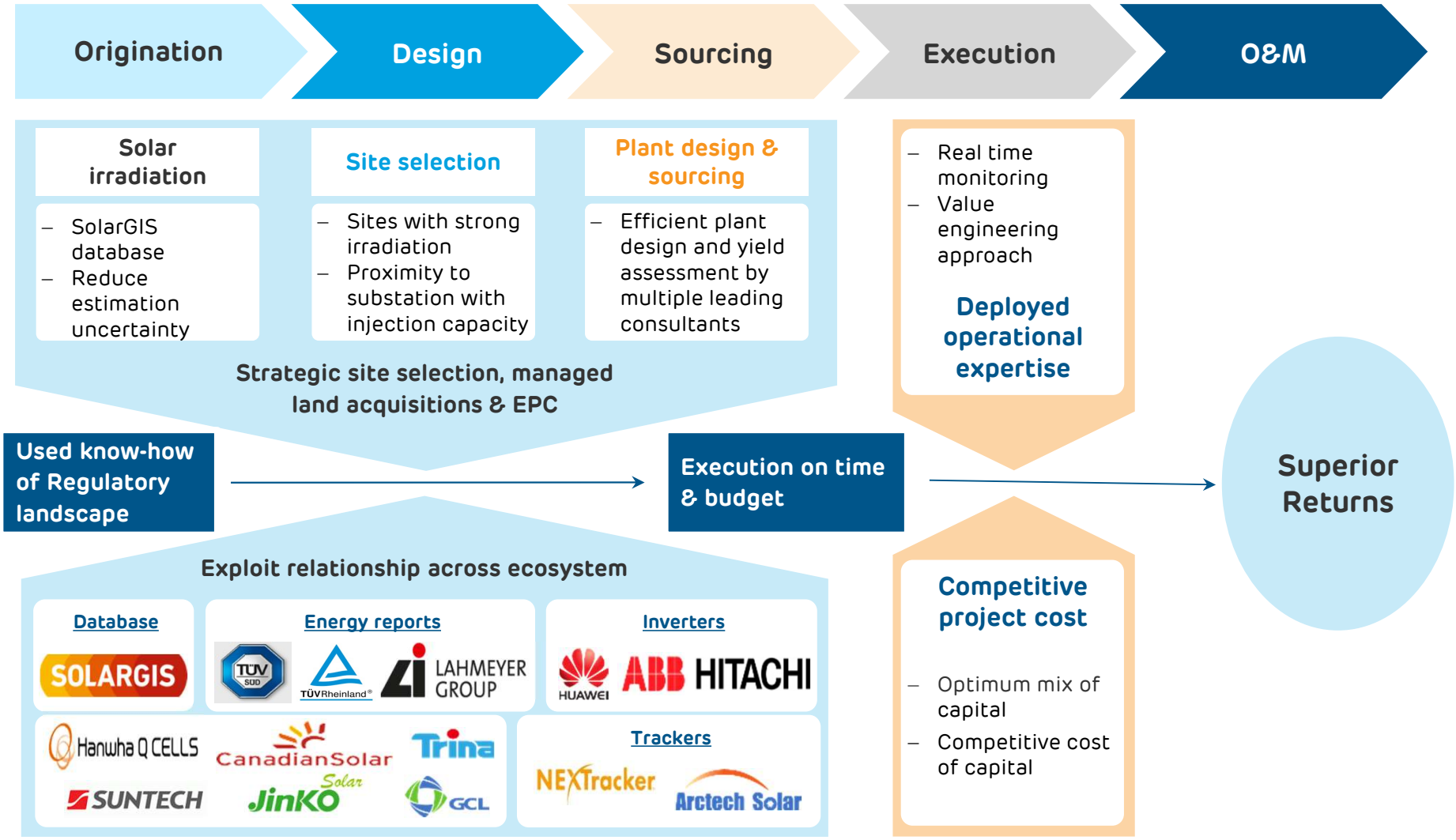
- Backed by **strong organizational structure and sponsor support**, we worked relentlessly with the vendors and land acquisition dealers to help them overcome the issues
- This allowed for **faster recovery of business with no major hindrances**

Even in the midst of two of the greatest policy shifts in the recent history of India like demonetization and GST, AGEL delivered 33 high quality projects all across the country

UC – under construction, GST – Goods and Services Tax

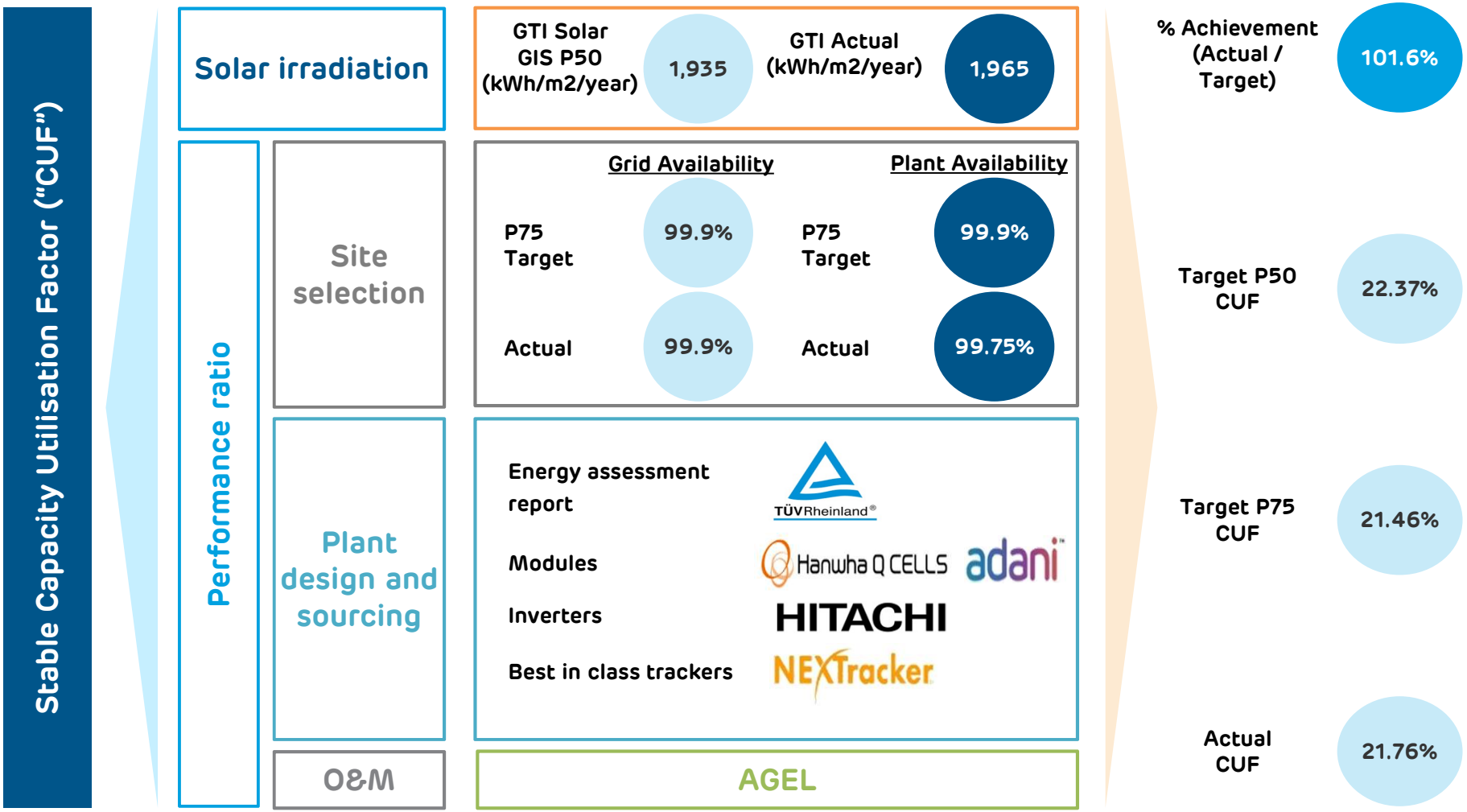
Case Study 3a: AGEL - Punjab 100 MW Project Execution

AGEL Punjab – Project Development



Case Study 3b: Punjab 100 MW Project Operations

AGEL Punjab – Project Development



AGEL portfolio's operational performance has been exceeding the targets set out initially

Plant performance for FY'18

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Source highest quality equipment from reputed OEMs

Solar Modules

- **Best Vendors** : Resilient and reliable supply from Tier-1 vendors, strategic relationship with 6 Super League
- **No Technology Risk :** Procured Solar PV modules from all the available technologies i.e. C-Si, Thin Film (A-Si, CdTe, CIGS), Bifacial, RG Group - CSi and CdTe
- Stringent quality inspection criteria, fully automatic line selected at manufacturer's plant, online inspection performed by our engineers and renowned third party lab
- **Performance Warranty for 25 year and Product Warranty for 10/12 years**

Inverters and Trackers

Inverters

- Based on technological advancement and economic viability used both central and string inverters in the projects **(1.2 GW capacity with string inverters)**
- In recent projects utilised string Inverters were preferred primarily because of easier and quicker installation, localisation of problems and thus affecting minimum generation and ease in maintenance.
- **Best in class Huawei String Inverters and ABB/Hitachi Central Inverters are being used at various locations, with 5-6 year product warranty**

Trackers

- Based on resource estimation, Tariff and incremental capex, single axis trackers have been installed in some projects
- We have used the market leaders i.e. NEXTracker, USA and Artech, China for our solar projects
- **Warranty for 20 Years for structural components and 5 years for motor and gears**

AGEL's relationships with majority of vendors assures best in class equipment procured on favorable terms

C- Si – Crystalline Silicon, A -Si – Amorphous Silicon, CdTe – Cadmium Telluride, CIGS – Copper, Indium Gallium Selenide Solar Cell, ABB – ASEA Brown Boveri, USA – United States of America, RG – Restricted Group

Our O&M Philosophy

Operational Strategy	– **Cluster based operating model** to ensure adequate support and governance at each site – Optimized module cleaning cycle by comparing revenue loss due to soiling against the cost of module cleaning – **Maintenance and Operational Excellence** based on real time data analytics – Thermal imaging of evacuation system at all sites post commissioning and at an interval of every 6/12 months
New Technology & Innovation	– **Remote Operations and Nerve Center (RONC)** for central monitoring of the plant performance – **Dust Detection System (DDS**) for measuring the soiling loss and optimizing the module cleaning cycle – String monitoring for operational efficiency improvement – Thermal imaging for monitoring module health – Use of **Google Glass and Module Level Power Electronics**
Maintenance Strategy	– All equipment classified on the basis of criticality and maintenance strategy linked clearly to classification – Comprehensive contract management framework for Inverters and Module – Comprehensive AMC of the Switchyard equipment and associated transmission lines
Spares Management	– Inventory classification based on Vital, Essential and Desired depending on criticality – Level set in stringent manner ensuring optimum inventory – Spares development and indigenization and introduced the concept of Spares Pooling – Adopting Annual Rate Contract for consumable items

Technological advances in O&M practices ensure AGEL is at par with global standards of operations

RONC – World Class Monitoring and Analytics

RONC (Remote Operations Nerve Center)

- Centralization of overall management of all Adani sites from a single location
- Data Analytics driven decision making
- Drive world class operational performance as sustainable competitive advantage
- Create potential for new business providing operations as a service to other power companies

RONC Benefits

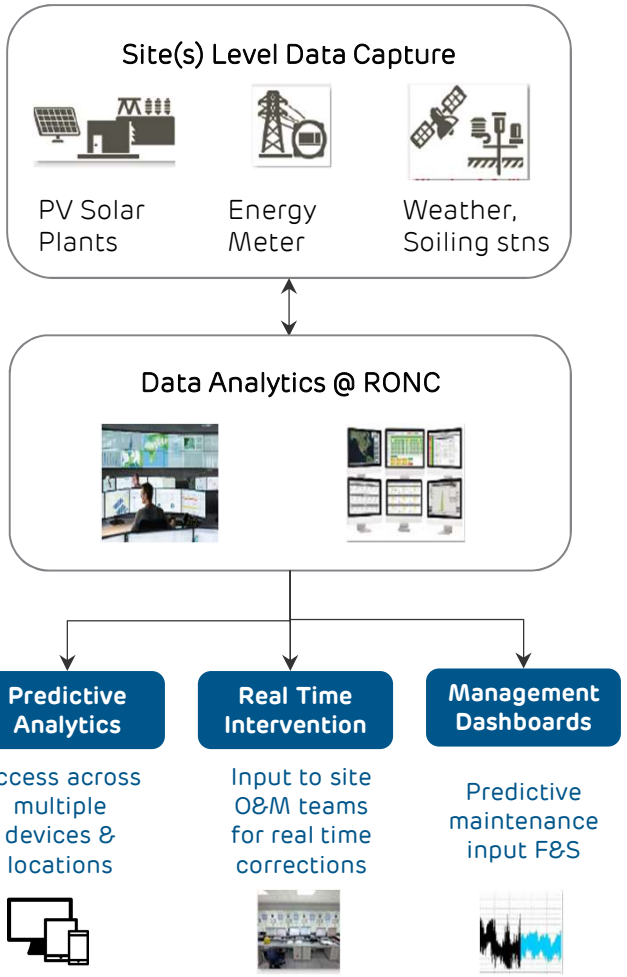
Centralized Management
- Ability to manage large number of sites
- Support increasingly complex operations

Fully Automated Operation
- Minimal manual intervention
- Reduce maintenance cost – increasing margins

Real Time Data Availability
- Access plant performance data anywhere (desktop, mobile) & anytime – both real time and historical data

Business Intelligence
- Leveraging analytics and Machine Learning to improve operational performance to industry leading levels

RONC Operational Flow



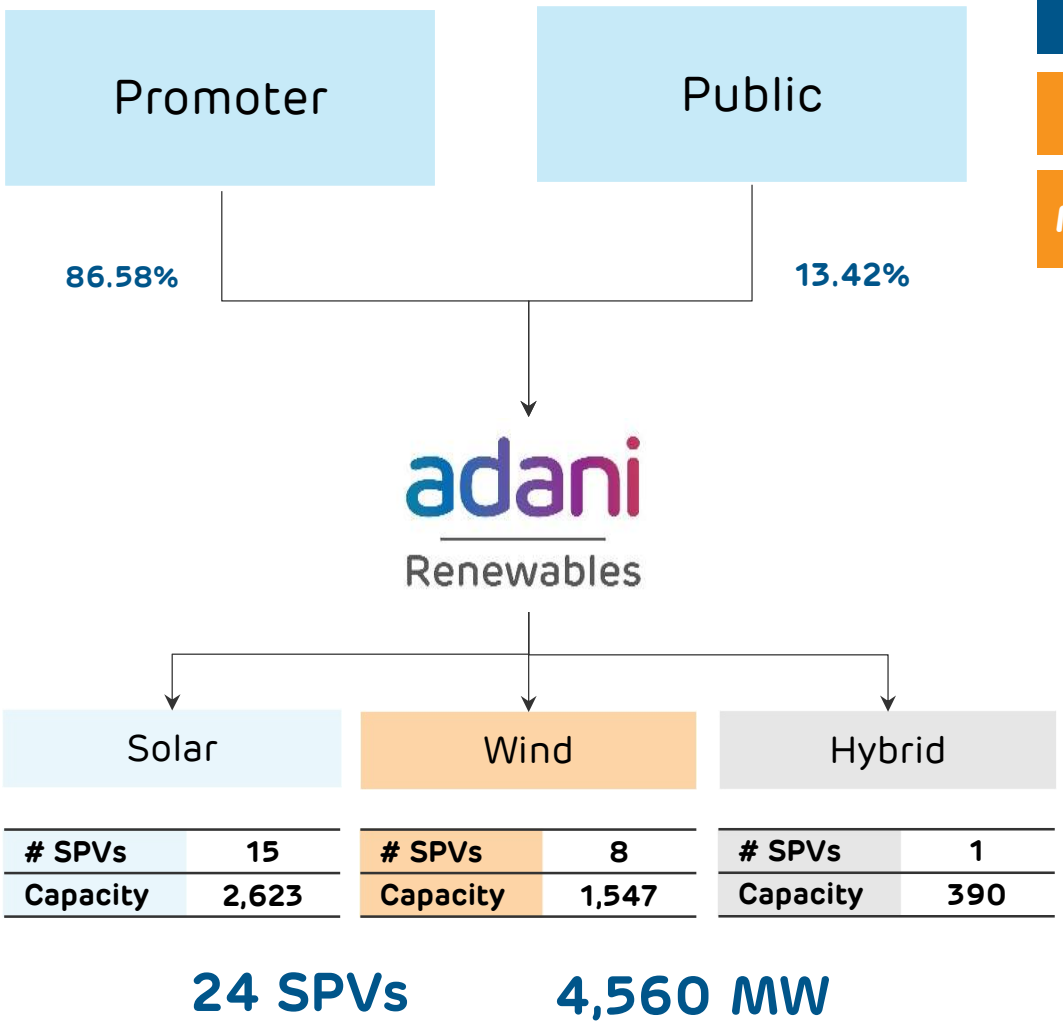
RONC will allow centralisation of all operations and help in delivering world class O&M practices

2.Adani Green Energy

E. Portfolio and Operational Details

Adani Green – Holding Structure

Holding Structure



Details

Demerged from AEL on	1st April 2018
Listed on	18th June 2018
Market Capitalization[1]	INR 5,802 Cr

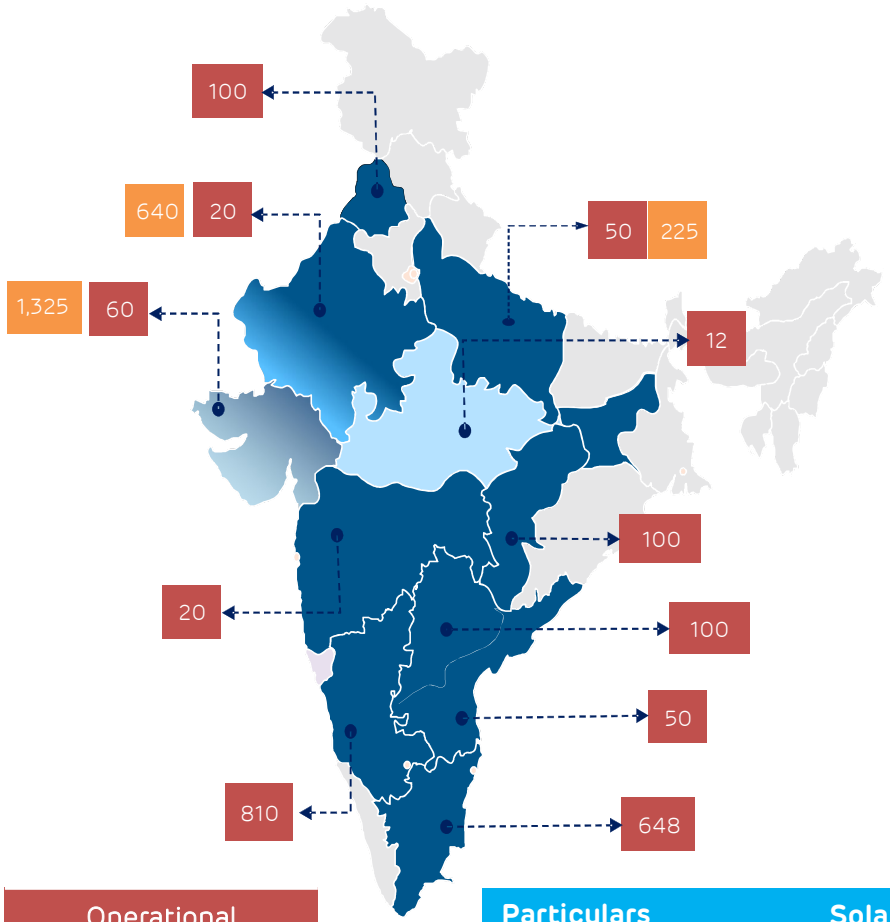
9M'19

- Revenue[2] – INR 1,412 cr
- EBITDA[2] – INR 1,275 cr
- Assets – INR 14,220 cr
- Credit Rating – IND A/Stable

1. Market Cap as on 29th Mar, 2019,

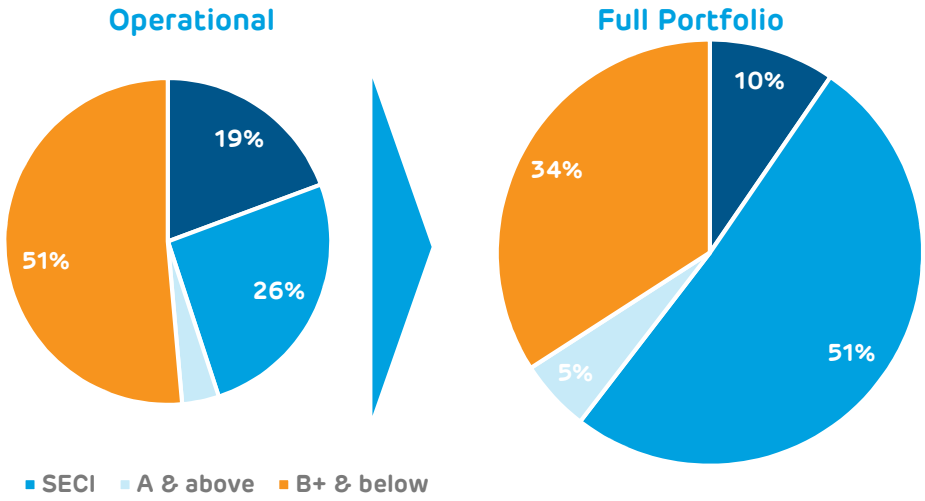
2 – includes other income

Pan India Portfolio



Operational
Under Implementation
Wind
Solar

Revenue Split by Counterparties



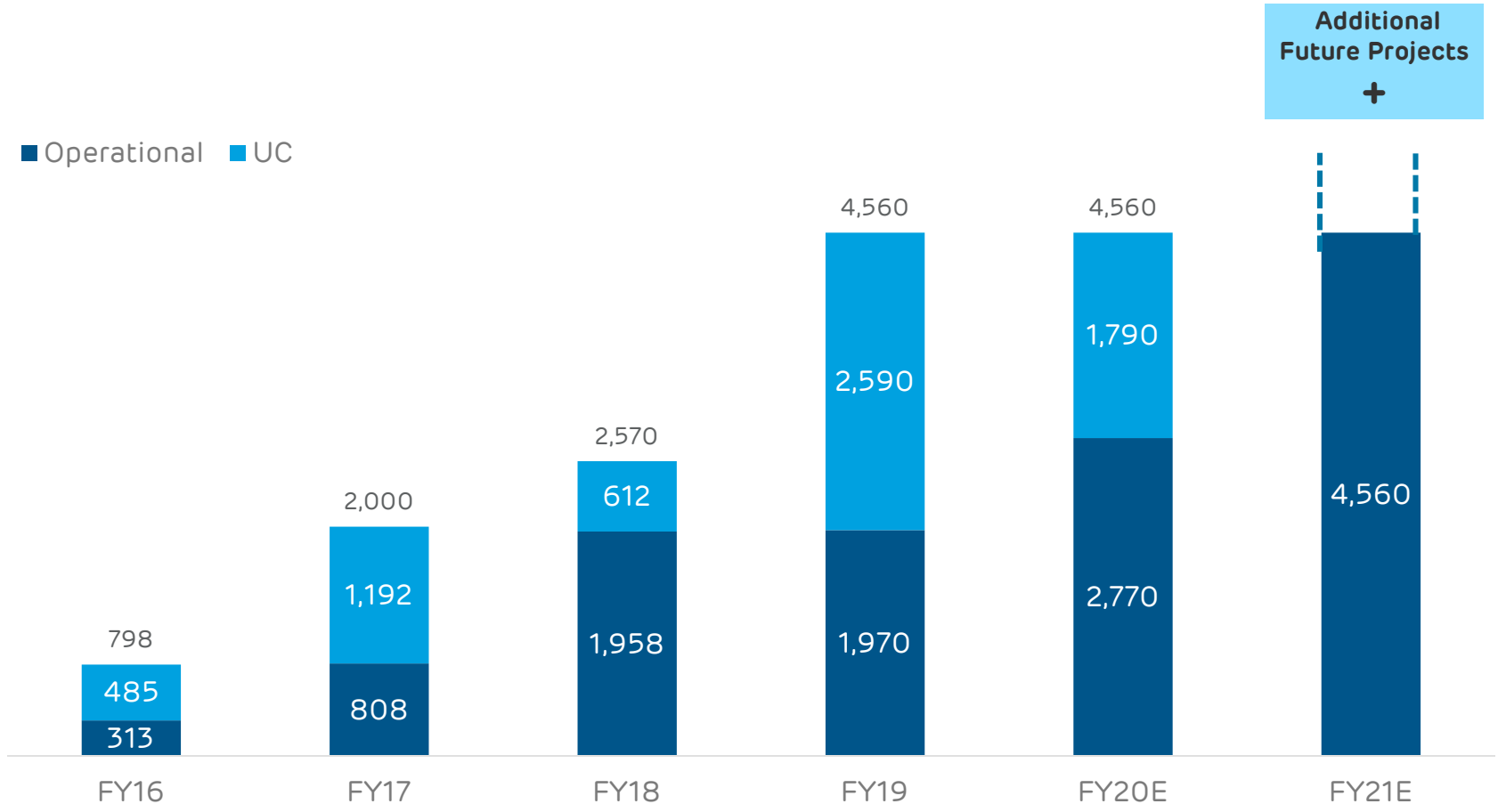
Particulars	Solar	Wind	Hybrid	Total
Operational	1,898	72	-	1,970
UC	725	1,475	390	2,590
Total	**2,623**	**1,547**	**390**	**4,560**

57 Locations

11 States

100% of the portfolio tied-up with sovereign counterparties for 25 years at fixed tariff

Development Risk Profile improving

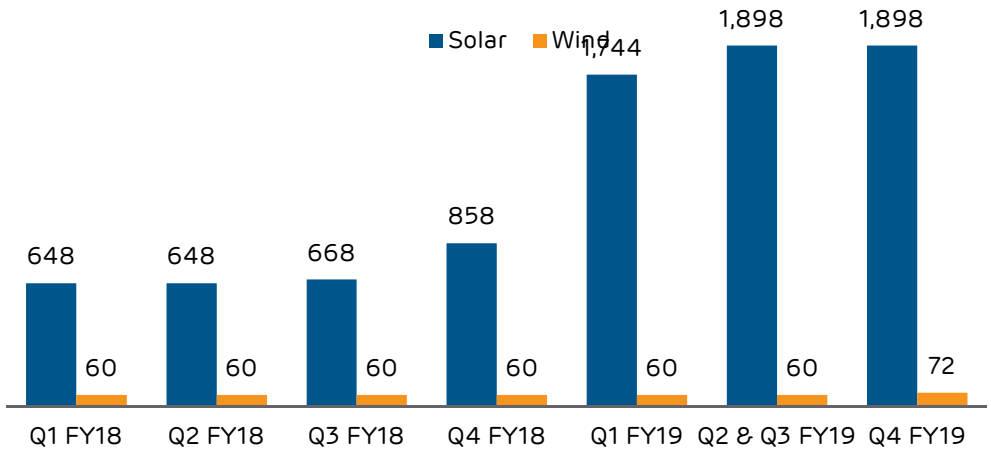


- In the forecast period given, AGEL is planning investments in international markets, primarily in the US, with approx. INR 100 Cr equity investment per year

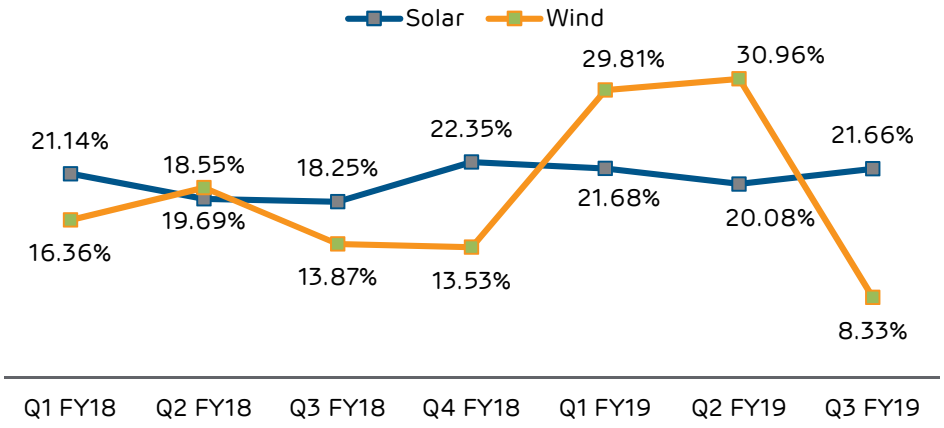
Over the years, the development risk of the portfolio is decreasing due to faster execution of projects and more projects getting commissioned in near future

Actual Operational Performance

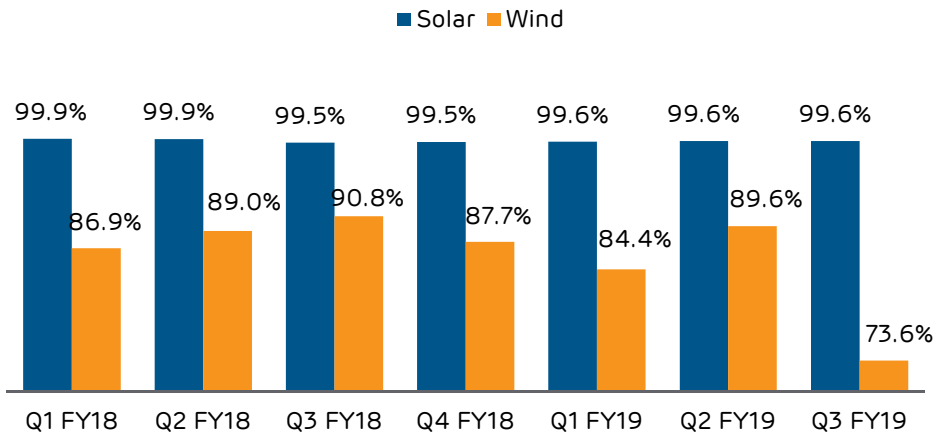
Capacity (MW AC)



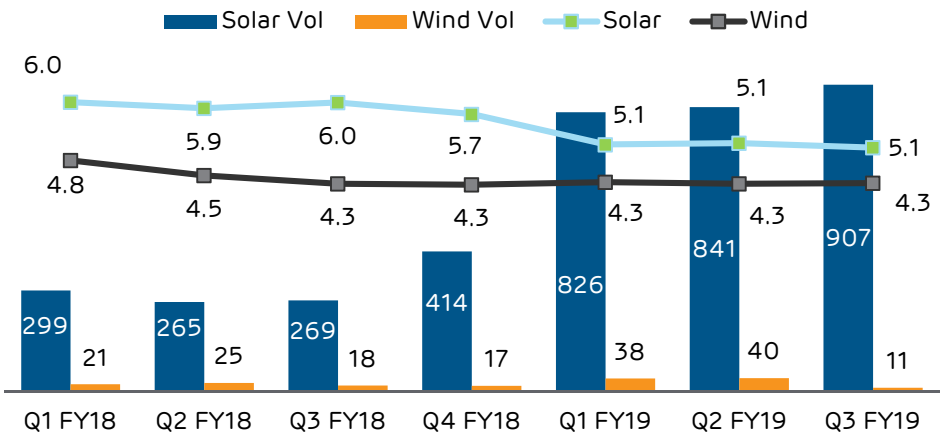
PLF % (AC)



Plant Availability



Volume (MUs) & Average Realization (Rs/kwh)



Target Solar generation for 4,130 Mu' @CUF of ~25% (annualized) with Avg. Realization per unit of INR 5.20 for 1,898 MW_{AC} capacity

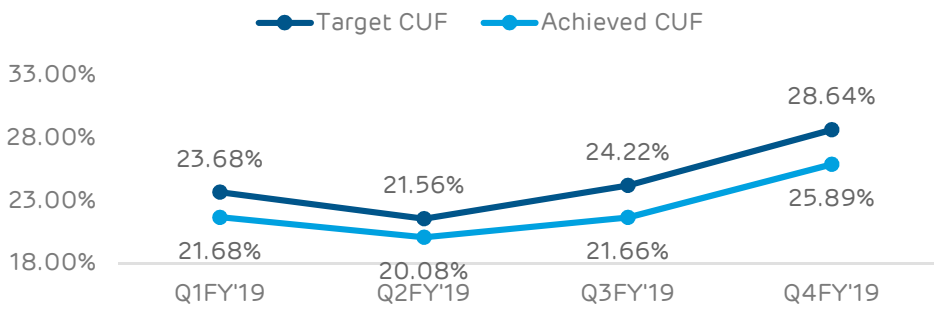
Target Wind generation for 135 Mu' @CUF of ~25% (annualized) with Avg. Realization per unit of INR 4.20 for 60 MW_{AC} capacity

Note: Q3'19 saw low plant availability due to certain issues at the end of equipment supplier, which have now been resolved

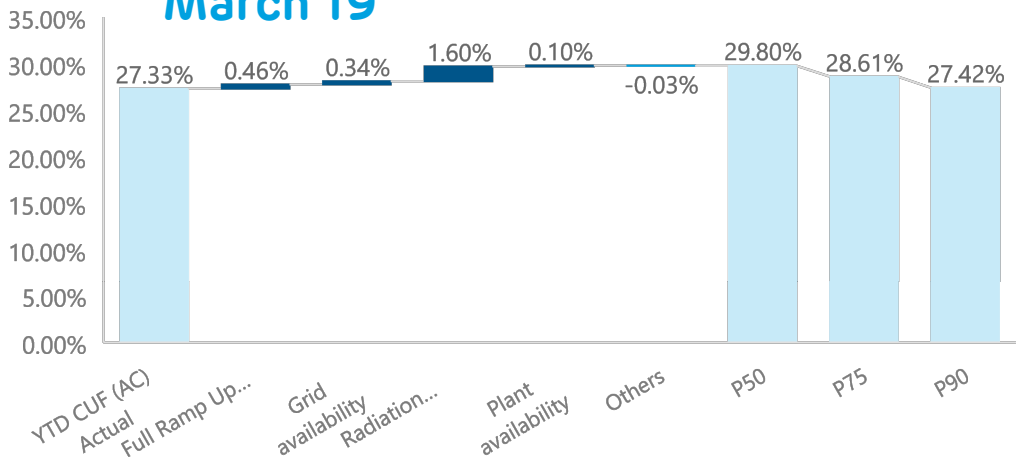
1.9 GW Solar Portfolio Operational Bridge

Actual to Technical Estimates*

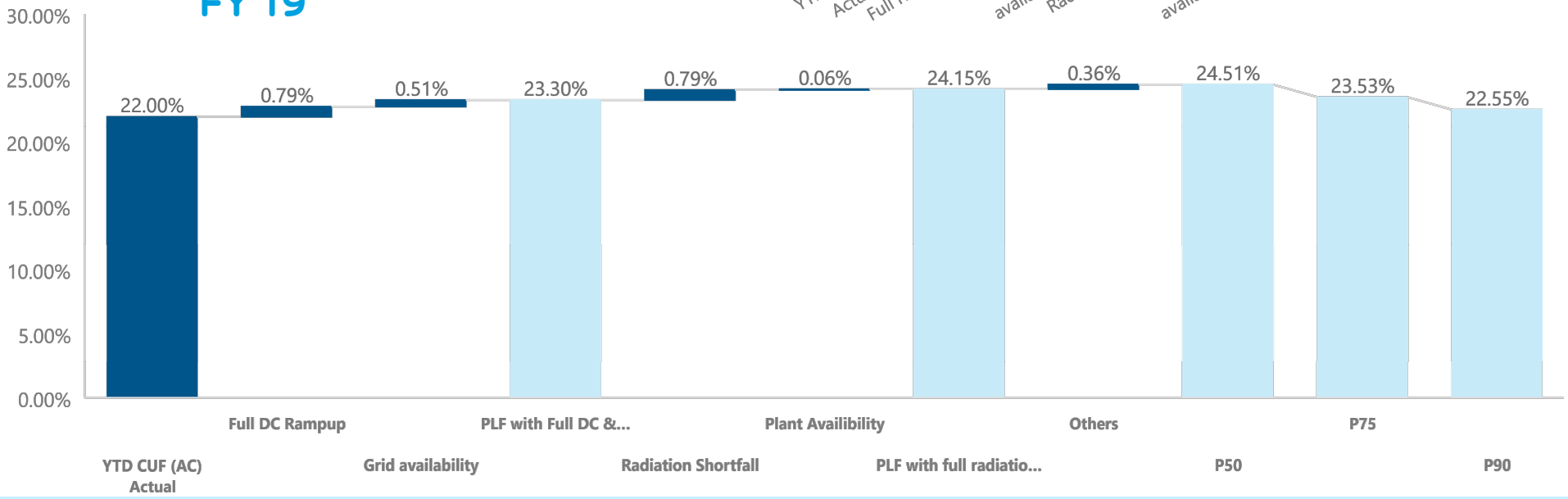
Estimated Quarterly CUF for 1.9 GW_{AC} Portfolio



March'19



FY'19



AGEL has almost achieved its PLF P75 targets ensuring optimum plant utilization and steadily marching towards P50

Annual Target CUF for Solar capacity of 1898 MW is ~25%

* - Generation target for Kamuthi Solar plant has been adjusted to P75 level, whereas all other plants are at P50

Financial Summary – Income Statement

Particulars (INR Cr)	FY17	FY18	9M19
Revenue from Power Sale only	496	939	1,377
Other income	80	46	35
Total Revenue	**577**	**986**	**1,412**
O&M	50	75	74
Other Expenses	48	51	63
Total Expenses	**98**	**126**	**137**
EBITDA	**479**	**860[2]**	**1,275**
EBITDA %	*83.0%*	*87.2%*	*90.3%*
Depreciation	333	543	769[4]
Finance Costs	334	490	1,011
Cash Profit[5]	**144**	**523**	**263**
Cash Available for equity shareholders after debt service[6]	**144**	**432**	**77**
Cash available / per share	**1.29**	**2.76**	**0.49**

Net External Debt[1] / EBITDA as of December 18 stands at appx. 5.2x[3]

1. Net External debt = Total LT debt – Related Party debt + Capex Creditor - Cash and Cash Equivalent – Receivables – Debt towards CWIP,
2. Majority of the projects in FY18 were commissioned in the month of March 2018 and hence EBITDA realization for the full year was not achieved
3. EBITDA annualized for full year
4. Depreciation, if changed to SLM would have been 283 Cr for 9M'19 and charge to P&L on account of depreciation would have been lower by 486Cr
5. Cash Profit = EBITDA + Other Income - Interest & Bank Charges - Income Tax Expenses
6. Cash available for equity shareholders = PAT + Depreciation - Deferred Tax - Normal Repayments; Debt service does not include pre-payments

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Financial Summary – Balance Sheet

Particulars (INR cr)	FY17	FY18	6M FY19
Assets			
Non Current Assets			
PPE	4,340	7,983	10,271
CWIP	267	1,659	737
Intangible	1	1	1
Financial Assets	114	215	465
Deferred Tax Assets	138	215	349
Other Non Current Assets	96	416	490
Current Assets			
Inventories	0	15	138
Trade Receivables	336	584	369
Cash and Cash Equiv.	187	422	307
Other Financial Assets	655	469	568
Other Current Assets	26	84	325
Total Assets	**6,160**	**12,063**	**14,020**
Equity and Liabilities			
Total Equity	1,203	1,241	1,079
Quasi Equity (ICD) [1]	1,598	1,577	1544
Non Current Liabilities			
Borrowings	2,685	6,293	9,149
Other	4	13	9
Current Liabilities			
Borrowings	15	299	38
Payables	8	53	136
Other financial liabilities	647	2,587	2,065
Total Equity + Liabilities	**6,160**	**12,063**	**14,020**

1. Promoter Debt of perpetual nature in form of ICD has been re-categorized as Quasi Equity

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Profitable growth leading to superior returns

	Capacity (in MW)	Average Tariff (in Rs/kWh)	Completed / Expected Project Cost# (in Rs Cr)	Revenue^ (in Rs Cr)	EBITDA$ (in Rs Cr)	Capex / EBITDA
Operational						
Solar	1,898	5.07	12,540	2,135	2,044	6.13
Wind	72	4.06	455	79	72.56	6.27
Total	1,970	5.04	12,995	2,213	2,117	6.14
Under Construction						
Solar	725	2.88	3,014	508	474	6.36
Wind	1,475	2.73	8,626	1,399	1,324	6.52
Hybrid	390	2.69	2,086	351	329	6.34
Total	2,590	2.77	13,726	2,258	2,126	6.45
Portfolio Total	4,560	3.75	26,721	4,471	4,243	6.30

– Completed Project Cost net of GST refunds to further reduce by ~300Cr, further reducing Capex/EBITDA number
^ - Solar plants Revenue @ P50 & Wind plants Revenue @ P75
$ - Estimated operational EBITDA at plant level; Does not include AGEL HO overheads

2.Adani Green Energy

F. Financing Philosophy

Capital Structure as enabler for growth

Debt Philosophy

100%
Project debt self-amortizing before end of contracted life

+95%
of FX and interest rate fixed or hedged

1 year
"Tail periods" in all SPV level debt

Strong Sponsor Leadership in infrastructure sector

Strong Sponsor with 2 IG-rated infrastructure companies in India, viz. APSEZ & ATL

Efficient refinancing to unlock cash flows for growth

Pool with diversified Counterparty Mix
- NTPC – 370 MW (40%)
- SECI – 160 MW (17%)
- State DISCOMs with A rated or more – 160 MW (17%)
- Other State DISCOMs – 240 MW (26%)

Stable & Predictable Cash Flows
- 100% contracted business with **Long term PPA's (~25 years)**
- Over 60% (on fully completed basis) with **Sovereign equivalent counterparties**

Project Finance protections
- Each pool is ring fenced
- Debt size and covenant linked to credit quality
- Generation mix is assured for life of pool

Robust Operational & Financial Performance
- High margins (~90% EBITDA margin), sustained growth and strong credit (conservative with all debt retired within PPA term)
- Comprehensive information and compliance package

Vision to make AGEL IG rated by focusing on cost of capital & accretive returns

Debt Repayment includes the repayment of existing debt + debt to be drawn for the construction of projects in pipeline today. Straight Line repayment for under construction assets debt

2.Adani Green Energy

G. Compelling Investment Opportunity

AGEL: A Compelling Investment Opportunity

1. Infrastructure lineage

- Adani group is a leader in infrastructure –ports, T&D, thermal power and renewables
- Proven track record of excellence in development & construction

2. Significant Growth Opportunity

- India plans to grow renewables from 75GW to 175GW in next few years
- Economics of renewable power superior to that of thermal
- AGEL has large land bank, rich in solar and wind resources, located next to green corridor

3. Disciplined Capital Allocation

- Disciplined approach towards new project bidding, strong focus on returns
- Optimal capital management to drive cash available to equity holders

4. World-class O&M practice

- Proven track-record operating ~2GW solar & wind
- Remote Operating Nerve Centre centralises all operations and in delivering world class O&M practices

5. Stable & predictable cash-flows

- 100% contracted business with **long term PPA's (~25 years)**
- Over 60% offtake by **NTPC & SECI** (on fully completed basis)

Thank You

A

APPENDIX
List of Annexures

Wind Projects

Solar

Hybrid

Asset Level Details - Operational

SPV	Project Name / Location	Type	Capacity (AC)	Tariff	COD	Counterparty		
						Name	Credit Rating	Term
AGETNL	AGETNL	Solar	216	7.01	Mar-16	TANGEDCO	ICRA (B)	25
	RSPL	Solar	72	7.01	Feb-16	TANGEDCO	ICRA (B)	25
	KREL	Solar	72	5.76[1&2]	Mar-16	TANGEDCO	ICRA (B)	25
	KSPL	Solar	216	5.10[1]	Sept-16	TANGEDCO	ICRA (B)	25
	RREL	Solar	72	5.10[1]	Sept-16	TANGEDCO	ICRA (B)	25
AGEUPL	Karnataka	Solar	240	4.57[4]	Sept-17-Mar-18	Karnataka ESCOMS	ICRA (B+ to A)	25
KSPPL	Karnataka	Solar	20	4.36[4]	Jan-18	BESCOM	ICRA (A)	25
PDPL	Punjab 100	Solar	100	5.88	Jan-17	PSPCL	ICRA (B+)	25
	UP - II	Solar	50	4.78	Jul-17	NTPC	Baa2/BBB-	25
	AP - Ghani	Solar	50	5.13	Oct-17	NTPC	Baa2/BBB-	25
	Rajasthan - 20	Solar	20	4.36	Nov-17	NTPC	Baa2/BBB-	25
PSEPL	Tgana (open)	Solar	50	4.67	Dec-17	NTPC	Baa2/BBB-	25
	Tgana DCR	Solar	50	5.19	Dec-17	NTPC	Baa2/BBB-	25
	Karnataka - 100	Solar	100	4.79	Jan-18	NTPC	Baa2/BBB-	25
	Chattisgarh	Solar	100	4.425[3]	Mar-18	SECI	ICRA (AA+)	25
	Karnataka Pavagada - DCR	Solar	50	4.86	Feb-18	NTPC	Baa2/BBB-	25
	Karnataka - DCR	Solar	40	4.43	May-18	SECI	ICRA (AA+)	25
	Karnataka - 10	Solar	10	5.35	Oct-17	GESCOM	ICRA (B)	25
	Maharashtra	Solar	20	4.16[6]	Mar-18	SECI	ICRA (AA+)	25
Wardha Solar	Karnataka	Solar	350	4.43	Feb-May18	SECI	ICRA (AA+)	25
AGEL – Lahori	MP	Wind	12	5.92	Mar-16	MPPMCL	ICRA (C+ & B+)	25
AWEGPL	Gujarat	Wind	48	3.92	Mar-17	GUVNL	ICRA (A+)	25
Mundra Wind	Gujarat	Wind	12	3.46	Feb-19	MUPL	ICRA AA+	25
Total			**1,970**					

Payment Security for all projects - 1 month invoice revolving LC. Additionally, for SECI projects, corpus fund covering 3 months is provided

1. Appeal has also been filed by NSEFI before APTEL for extension of control period and restoration of tariff.
2. KREL's 72 MW plant is split for Tariff purpose by TANGEDCO into 25 MW and 47 MW at Tariff of 7.01 Rs./kWh and 5.10 Rs./kWh respectively. The said order has been challenged before the Tamil Nadu High Court.
3. The Company has filed Force Majeure claim on account of stay order issued by the Hon'ble High Court of Chhattisgarh. SECI has not accepted our claim. Petition is being filed before CERC challenging the said reduction in tariff from Rs. 4.43/kwh to Rs. 4.425/kwh and LD deduction.
4. The Company has filled petition with KERC for extension of original PPA tariff instead of regulated tariff (Rs. 4.36/kwh) due to force majeure reasons.
5. As per UPERC order, tariff has been revised from Rs .8.44 to Rs. 5.07. Order has been appealed before APTEL, where currently pleadings are being done.
6. For Kilaj a petition is being filed before CERC.

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Asset Level Details – Under Construction

Wind Projects
Solar
Hybrid

SPV	Project Name / Location	Type	Capacity (AC)	Tariff	COD	Counterparty		
						Name	Credit Rating	Term
ARERJL	Rajasthan	Solar	200	2.71	Aug-19	MSEDCL	ICRA (B+)	25
AGEUPL	Jhansi	Solar	50	5.07[5]	Apr-19	UPPCL	ICRA (C)	25
AGEONEL	Gujarat	Solar	150	2.67	Nov-20	GUVNL	ICRA (A+)	25
GSBPL	Gujarat	Solar	100	2.44	Aug-20	GUVNL	ICRA (A+)	25
Kilaj SMPL – SECI	Rajasthan	Solar	50	2.54	July-20	SECI	ICRA (AA+)	25
Kilaj SMPL – UPNEDA	UP	Solar	100	3.21	Sept-20	UPPCL	ICRA (C)	25
UPPCL	UP	Solar	75	3.08	Nov-20	UPPCL	ICRA (C)	25
AGEMPL – SECI 1	Gujarat	Wind	50	3.46	July-19	SECI	ICRA (AA+)	25
AGEMPL - SECI 2	Gujarat	Wind	50	2.65	July-19	SECI	ICRA (AA+)	25
AGEMPL - SECI 3	Gujarat	Wind	250	2.45	Nov-19	SECI	ICRA (AA+)	25
AREGJL	Gujarat	Wind	75	2.85	Jan-20	MSEDCL	ICRA (B+)	25
ARETNL – SECI 4	Gujarat	Wind	300	2.51	Feb-20	SECI	ICRA (AA+)	25
AWEGJL – SECI 5	Gujarat	Wind	300	2.76	Jul-20	SECI	ICRA (AA+)	25
INOX 1 @	Gujarat	Wind	50	3.46	Apr-19	SECI	ICRA (AA+)	25
INOX 2 @	Gujarat	Wind	50	3.46	May-19	SECI	ICRA (AA+)	25
INOX 3 @	Gujarat	Wind	100	2.65	July-19	SECI	ICRA (AA+)	25
AGETHREEL	Gujarat	Wind	250	2.82	Dec-20	SECI	ICRA (AA+)	25
Hybrid	Rajasthan	Hybrid	390	2.69	Sept-20	SECI	ICRA (AA+)	25
Total			2,590					

Payment Security for all projects - 1 month invoice revolving LC. Additionally, for SECI projects, corpus fund covering 3 months is provided

@ AGEL has acquired / is in the process of acquiring beneficial interest in the project, subject to the terms of the PPA

1. Appeal has also been filed by NSEFI before APTEL for extension of control period and restoration of tariff.
2. KREL's 72 MW plant is split for Tariff purpose by TANGEDCO into 25 MW and 47 MW at Tariff of 7.01 Rs./kWh and 5.10 Rs./kWh respectively. The said order has been challenged before the Tamil Nadu High Court.
3. The Company has filed Force Majeure claim on account of stay order issued by the Hon'ble High Court of Chhattisgarh. SECI has not accepted our claim. Petition is being filed before CERC challenging the said reduction in tariff from Rs. 4.43/kwh to Rs. 4.425/kwh and LD deduction.
4. The Company has filled petition with KERC for extension of original PPA tariff instead of regulated tariff (Rs. 4.36/kwh) due to force majeure reasons.
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AGEL: International Opportunity

Project Name	MIDLAND	HARTSEL	HUNTER	SIGURD	US Total	Vietnam Solar	Vietnam Wind
Project Capacity (MWac)	72.1	72	100	80	**324.1**	38.1 MWac	27.2 MW
Location	South Carolina	Colorado	Utah	Utah		Ninh Thuan Province	
Expected Project CoD	Jul-20	Dec-22	Dec-20	Dec-20		Dec-20	Dec-20
Offtaker	South Carolina Electric & Gas Co	Xcel Energy	PacifiCorp	PacifiCorp		Electricity of Vietnam ("EVN")	Electricity of Vietnam ("EVN")
PPA Tariff ($/MWh)	$33.65	$26.84	$31.28	$28.82		$93.5	$85
Total Project Cost (USD Mn)			516.3		**516.3**	113.5,	
AGEL's Interest			51%		**51%**	100%	
AGEL's Expected Equity (USD Mn)				43			

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