



INTEGRATED REPORT

2017-18

POWERING OUR COMMON FUTURE





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ABOUT THE REPORT

GREENKO'S FIRST INTEGRATED REPORT

Preparation of this report involved structured effort involving internal reflection, to map company's value creation factors and adequacy of its strategy to protect and enhance value creation in the face of disruptions created by various external developments. This report is the outcome of the exercise thus undertaken. This report seeks to provide the reader with a simple and coherent picture of the same. We will continue to build upon this by strategically engaging with our stakeholders to further enhance our ability to protect and enhance our value creation.

REPORTING SCOPE

The information and data in the report pertains to progress made during the period 01st April 2017 to 31st March 2018 and refer to all the entities within the Greenko Group. The report contents also mention figures and events from the past to offer perspective. Forward-looking statement contained in this report is based on the analysis of the current context and is susceptible to change.

GUIDELINES AND STANDARDS

This report has been prepared in line with the framework established by the International Integrated Reporting Council (IIRC). This report also refers to GRI Standards for reporting and captures Greenko's contribution towards achieving the objectives of UNSDGs.

OUR COMMITMENT TO UNSDGs

We have identified 7 of the United Nations' Sustainable Development Goals (SDGs) as relevant to our business, as these are the areas where we can significantly make a positive contribution in the progress towards achievement of these goals. In this Integrated Report we have incorporated our progress towards contributing to these 7 goals.



For any feedback on this report contact:
Email: sustainability@greenkogroup.com

MATERIALITY

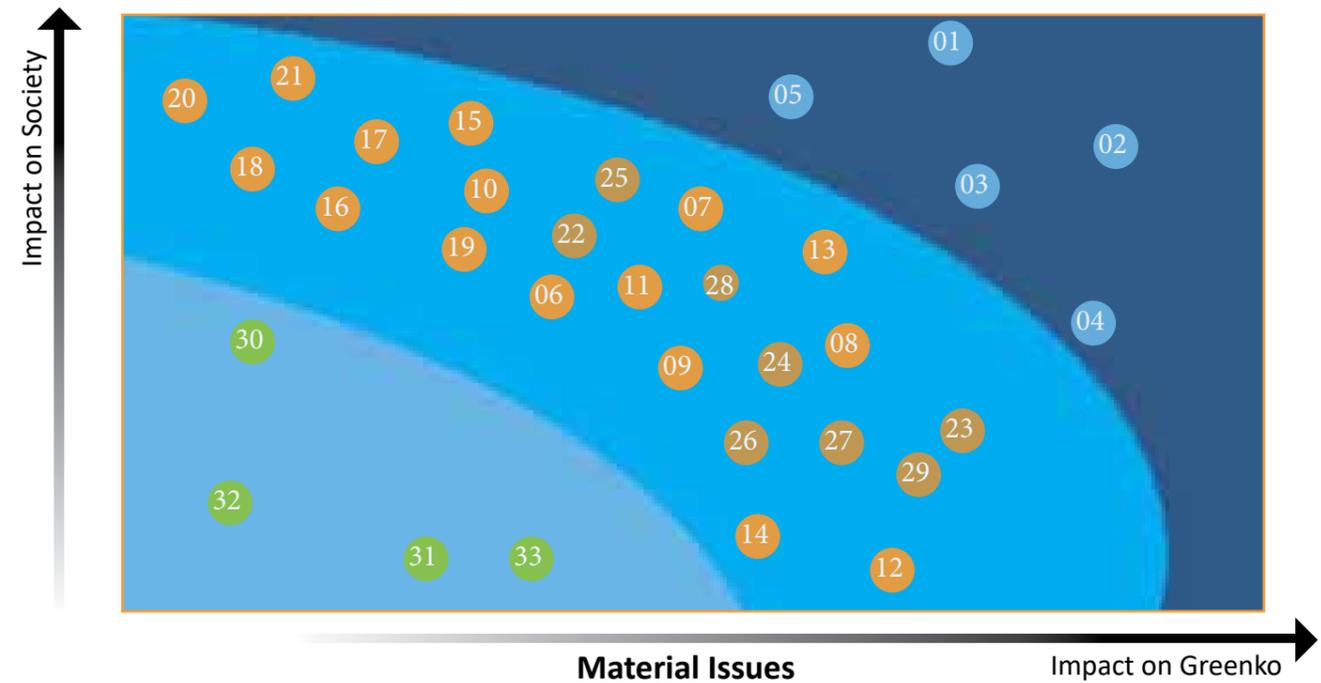
In the process of preparation of this report, the internal stakeholders were extensively consulted through focused group discussions and surveys to arrive at issues that are material (important) to business.

Consultations with and reports by leading industry bodies regarding matters that could impact the future of energy were also considered.

An issue has been considered material if it influences or likely to influence our ability to create value in the short, medium and long term. For materiality assessment the material issues have been identified, segregated and ranked as High, Medium and Low by considering their level of impact on Greenko and Society. These material issues are covered in detail in this report.



Integrated Reporting Workshop for Materiality determination



Material Issues		
HIGH	MEDIUM	LOW
<ul style="list-style-type: none"> 1. Economic Performance 2. Health & Safety 3. Asset Management 4. Project Management 5. CSR Initiatives 	<ul style="list-style-type: none"> 6. Transparency 7. Water Management 8. Climate change and Green house gases 9. Diversity 10. Stakeholder engagement 11. Corporate citizenship 12. Responsible Supply chain 13. Public Policy Participation 14. Regulatory compliances 15. Land Management 16. Biodiversity and Environmental Protection 17. Waste management 18. Talent Acquisition and retention 19. Employee welfare 20. Human rights 21. Land acquisition 22. Risk Management 23. Anti-corruption 24. Supply Chain Management 25. Skill Enhancement 26. Technology and Innovation 27. Integrated management system 28. Employee engagement 29. Training and Education 	<ul style="list-style-type: none"> 30. Energy Management 31. Life cycle approach 32. Succession Planning 33. Grievance mechanism





1

LEADERSHIP
SPEAKS

Message From Chairman



“Greenko’s results are very positive and reassuring from a strategic viewpoint and demonstrate the strength of our business model, organisation’s agility to adapt and capacity to generate value”

Dear Stakeholders,

I am delighted to present to you, Greenko’s Integrated Report for the period 2017-18. This report offers insight into the value creating performance of the company with regards to aspects which are contained in the IIRC framework.

Greenko’s performance is very positive and reassuring from a strategic viewpoint and demonstrates the strength of its business model, agility with which it adapts to and its capacity to generate value. While the management team continues to pursue value generation by following the strategic direction provided by the Board, myself and my colleagues in the Board have made best efforts to ensure that we follow best practices of risk management and protect the value that we generate as well as our ability to generate value. Besides, strengthening internal controls and risk management, our Board has been focusing on distributing the value amongst the stakeholders fairly, striking a sustainable balance. One constant at Greenko is adherence to values and ethics, while pursuing vision and mission, under the guidance of the Board. Greenko understands and appreciates the trust reposed by investors and the role such trust and ‘patience’ has in sustainable energy business and makes best efforts to meet their expectations and address their concerns. Partnerships with our suppliers is based on transparency and the Board requires that all such relationships are based on long-term mutually beneficial interests. In its relationships with customers, Greenko faces many challenges due to evolving regulations, financial

“Greenko understands and appreciates the trust reposed by investors and the role such trust and ‘patience’ has in sustainable energy business and makes best efforts to meet their expectations and address their concerns”

situation of many utilities etc. But these challenges are always handled ethically, patiently and in collaboration/partnership.

Greenko’s business activities involve management of large land mass and water resources - the resources that are in demand for alternate uses including livelihoods. The Board and the management team are committed to mitigating any negative impact on environment or livelihoods due to Greenko’s business activities. In fact, we would like to see net positive environmental and social impact, in the neighbourhood of our assets. The outcome of periodic audits by third party on implementation of Environment and Social Management Systems following IFCs performance standards at all sites are reviewed by the Board and we insist that management gives best attention to the same.

Through this integrated report, we are giving an account of how our business is creating value by contributing to seven capitals - finance, operational, intellectual, human, social and natural. This report is our first step in beginning the conversation with our stakeholders - conversation that results in preserving and enhancing our ability to generate value.

Om Prakash Bhatt
Chairman

Message From Managing Director



At Greenko, we focus on continuous value addition to all our stakeholders, energy market and communities through the culture of innovation, good governance and developing strong organizational capabilities to deliver economic and technological solutions with higher barrier addressing the unique challenges of Indian energy market.

Dear Stakeholders,

I am delighted to present to you Greenko's very first Integrated Report which is in line with International Integrated Reporting Council (IIRC) <IR> requirements. This report is an endeavor to bring to you Greenko's performance on <IR> aspects during the reporting period of 2017-18. As a responsible business we are committed to United Nations Sustainable Development Goals (UNSDGs) – particularly the ones dealing with Affordable and Clean Power and Climate Action. Accordingly, in this report we have also presented our performance on SDGs. We consider this report as an important landmark in our corporate journey as we seek to enlarge the horizon of our accountability and enable our stakeholders better understand the strengths that Greenko is endowed with for delivering all round value.

Increasingly, energy sector is experiencing the mega transformational forces – decarbonization, digitalization and decentralization coupled with electrification of energy transitioning in to other sectors such as Mobility and Agriculture.

At Greenko, we focus on continuous value addition to all our stake holders, energy market and communities through the culture of innovation, good governance and developing strong organizational capabilities to deliver economic and technological solutions with higher barrier addressing the unique challenges of Indian energy market.

The company has embarked on a vision to empower and unlock the constraints of Indian economy to meet the ambitious targets of over 200GW of renewable energy to support strategic national objectives of energy security and climate goals by developing new energy architecture of intelligent, schedulable, on-demand, and flexible clean energy at price and value cheaper than conventional fossil-based energy sources.

During the reporting period, in pursuit of our strategic vision, we began our business transformation journey. Our revenue growth during this period by 20% demonstrates our agility to adapt to new challenges and reaffirms our strategic vision. At Greenko we are in the process of ad-

At Greenko, we have been nurturing young talent to take up the new challenges in our business and this has yielded good results.

vancing towards achieving our GKO 3.0 goals – generation of reliable and schedulable power by continuation and reinforcement of project and asset management capabilities.

At Greenko, we realize that our ability to deliver economic value comes from our capacity to discern market drivers and harness; agility to adapt in the face of disruptions in the market and leverage innate innovative capacities of the organization. Besides our skilled operational teams assisted by technology and systems and Public-Private-People partnerships built on stakeholder trust further add to our ability to generate value. We continue to take initiatives of inorganic growth and our operations team has mastered the ability to derive meaningful productivity out of such acquired assets. During the reporting period we have been able to achieve healthy PLFs and maintain or reduce operational losses.

Continuing with our growth momentum, we have been allocating significant proportion of our financial resources to capex and also maintaining the diversity of deployment. Our focus on high capital productivity is unwavering and for that efficient operation and maintenance through intense deployment of digitalization, has been an important element of our strategy. Through the infrastructure that we have deployed, we are to able maintain seamless integration of our assets with the grid. We will continue to strengthen our differentiated position by initiatives such as improving flexibility of our supply and initiatives in energy storage.

Our operational performance is backed by robust processes and management systems under Greenko Integrated Management System. The coverage of standard operating practices under GIMS is continuously expanding and presently all-important processes are covered by SOPs. All engineer-

Our core business activity of renewable power generation is a major contributor for maintaining environmental integrity and mitigating climate change.

ing and management activities at our sites are under the purview of Greenko Integrated Management Systems and as also Environment and Social Management System. Performance under these systems are periodically audited by third party and the outcome is reported to the Board.

At Greenko, we have been nurturing young talent to take up the new challenges in our business and this has yielded good results. Our per capita training hours of 27, we believe is good and we would maintain or enhance the same. Besides, we need to provide alternate means and modes of training and learning to all our employees including those with contractors. The number of hours devoted to safety training of employees and contractor workers has increased by 18% over the previous year, while the number of hours devoted to safety training of contractor workers alone was increased by 71%. This has resulted in significant increase in incident free hours from 11.03 million man-hours in the previous reporting period to 24.32 million man-hours.

We owe our success to our external stakeholders including suppliers and customers. More than 98.5% of our suppliers have been working with us for more over three years. We note with satisfaction that our suppliers and customers are happily with us as indicated by the respective satisfaction indices 95% and 92%. Our community outreach through our involvement in community development initiatives has grown by five times, over the previous reporting period, in terms of number of beneficiaries. Such an increase has become possible by strategically targeting and effectively investing. We would in near future, sharpen our impact through community social investment by measuring social return on investment.

Our core business activity of renewable power generation is a major contributor for maintaining environmental in-

tegrity and mitigating climate change. In spite of that, we continue to additionally mitigate any impact of our actions on environment by working towards restoration of environment, water resources and biodiversity. Our teams, at every site, are continuing their efforts to conserve the natural habitats. Over the years Greenko addressed the challenges of climate change and economic growth. Further, we continue to transform our business model in response to evolving imperatives of sustainable development.

As Greenko continues to create and enhance value through strategic moves, the success of this journey is contingent upon partnerships and engagement with stakeholders. Stakeholder suggestions and feedback on our endeavor to build a sustainable business is welcome and will be acted upon.

Anil Kumar Chalamalasetty
Managing Director







2

PERFORMANCE
HIGHLIGHTS
2017-18

2 PERFORMANCE HIGHLIGHTS 2017-18

Summary of Greenko's capital wise key performance indicators

₹
FINANCIAL

TOP 3

Amongst the Top 3 RE companies in India by revenue generation

20.47%

Revenue Growth in FY 18 over FY 17

A+

Financial Rating

🌿
NATURAL

4,297,959

GHG emissions avoided (tCO2e)

20,000

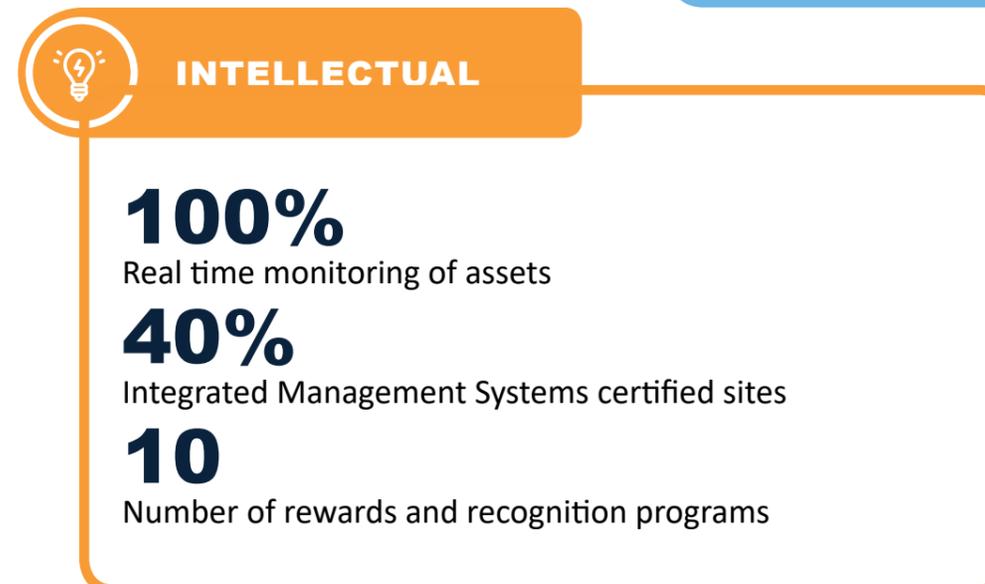
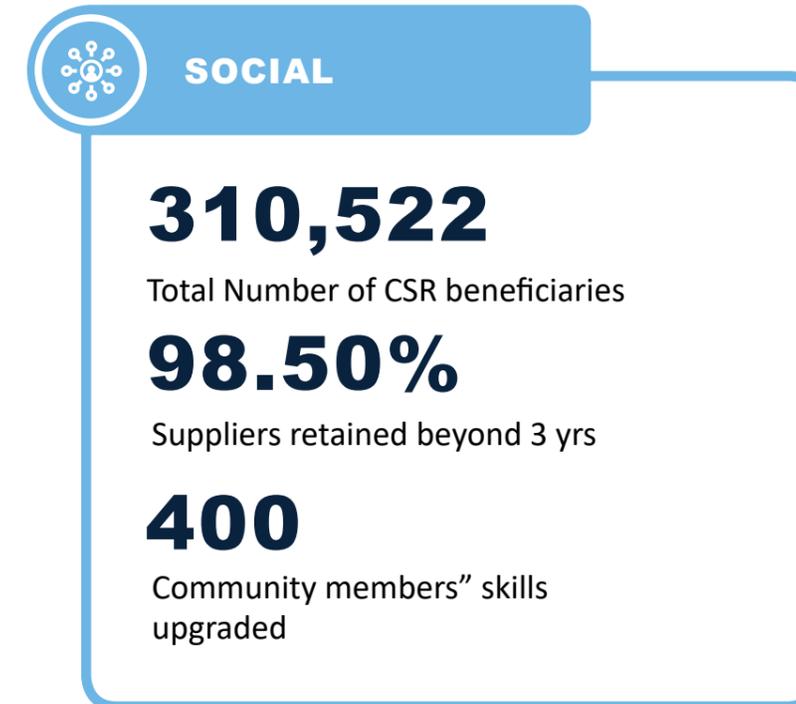
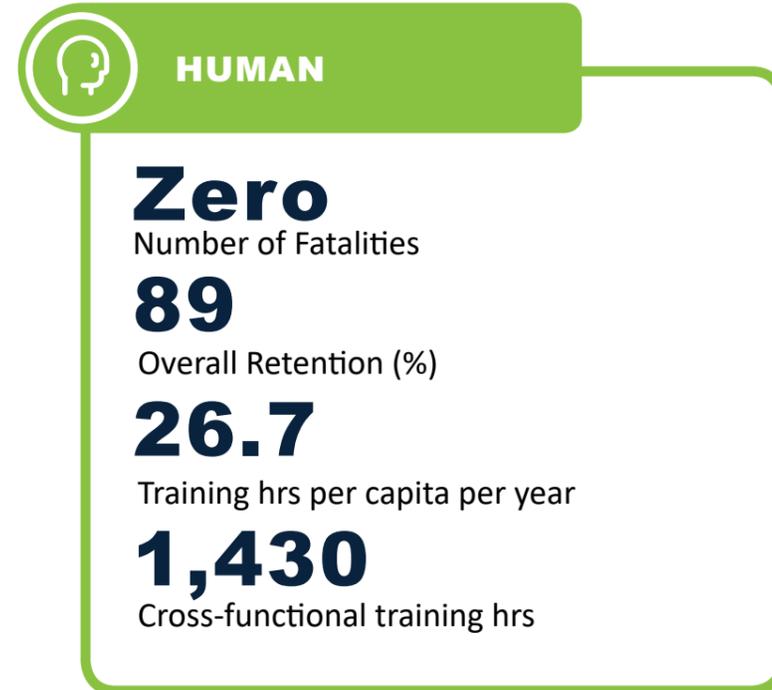
Number of trees planted

09

Number of RO water plants installed

🏭
OPERATIONAL

	Total Capacity added		
	Hydro	Solar	Wind
Plant Load Factor	39%	16.57%	22.05%
Plant Availability Factor	97%	99.9%	98%
Generation in MU	1,303.19	2,172.23	1,766
Grid Availability	99%	98.81%	82.73%







3

GREENKO TODAY
AND TOMORROW



3 GREENKO TODAY AND TOMORROW

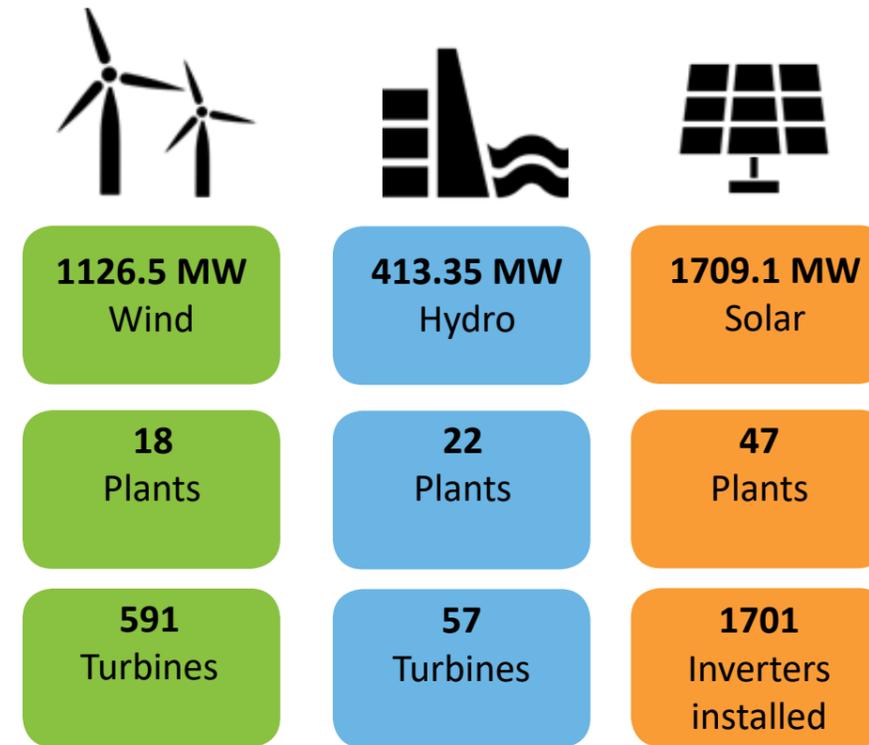


3.1 A BUSINESS WITH A PURPOSE

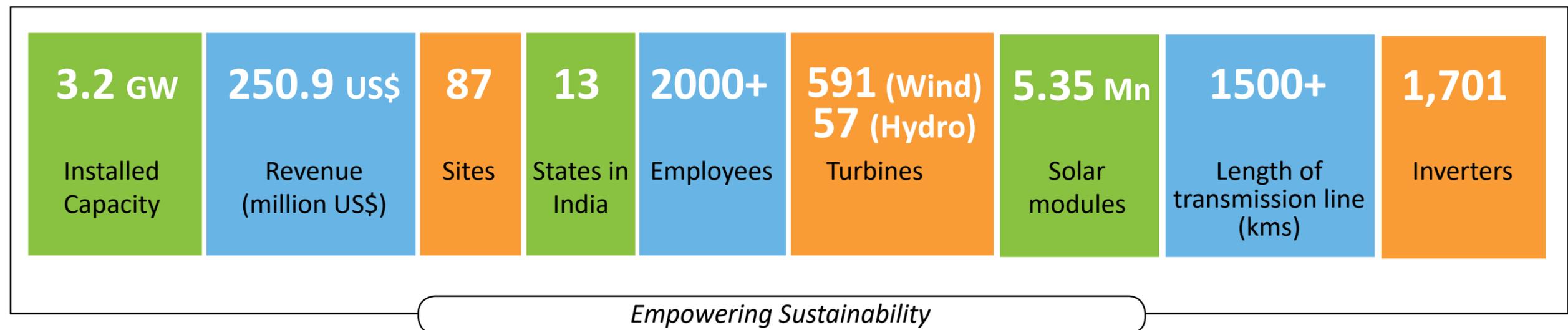
Greenko is one of the leading renewable energy companies in India, with assets across solar, wind, hydro, biomass and gas based power generation. It presently has an installed generation capacity of 3.2+ GW across 13 states in India, with another 12+ GW in pipeline.

Greenko is leading the digitalization, decarbonization & decentralization of the Indian energy market by providing utility-scale, clean and affordable energy to meet the country's long-term energy security needs. The group is committed towards transforming renewable energy from real-time energy to a dispatchable and controlled medium through digitalization and storage solutions to support the economy-wide shift towards a carbon-neutral electricity mix in the Country.

Greenko Group takes a long-term view of business, guided by strong corporate values, high ethical standards, and an able shareholder base which includes sovereign wealth funds GIC and ADIA. Greenko's ultimate holding company is Greenko Energy Holdings, which is incorporated in Mauritius.



Greenko Group in Numbers



3.2 ENDOWMENTS OF GREENKO

Current Portfolio of 3.2+ GW

Pipeline of over 12+ GW

Storage solutions to provide 24x7
Renewable Power in future

Evacuation

- Over 50 utility scale projects connected to high voltage grids

People

- Employee base is above 2,000. In-house expertise across value

Functions

- project designing, execution and operations

Superior Technology

- Reliable technology enabled platform – with remote asset level monitoring

Transmission and Distribution

- Grid ownership of 5 GW

Mark

- Over 6 billion households to be electrified

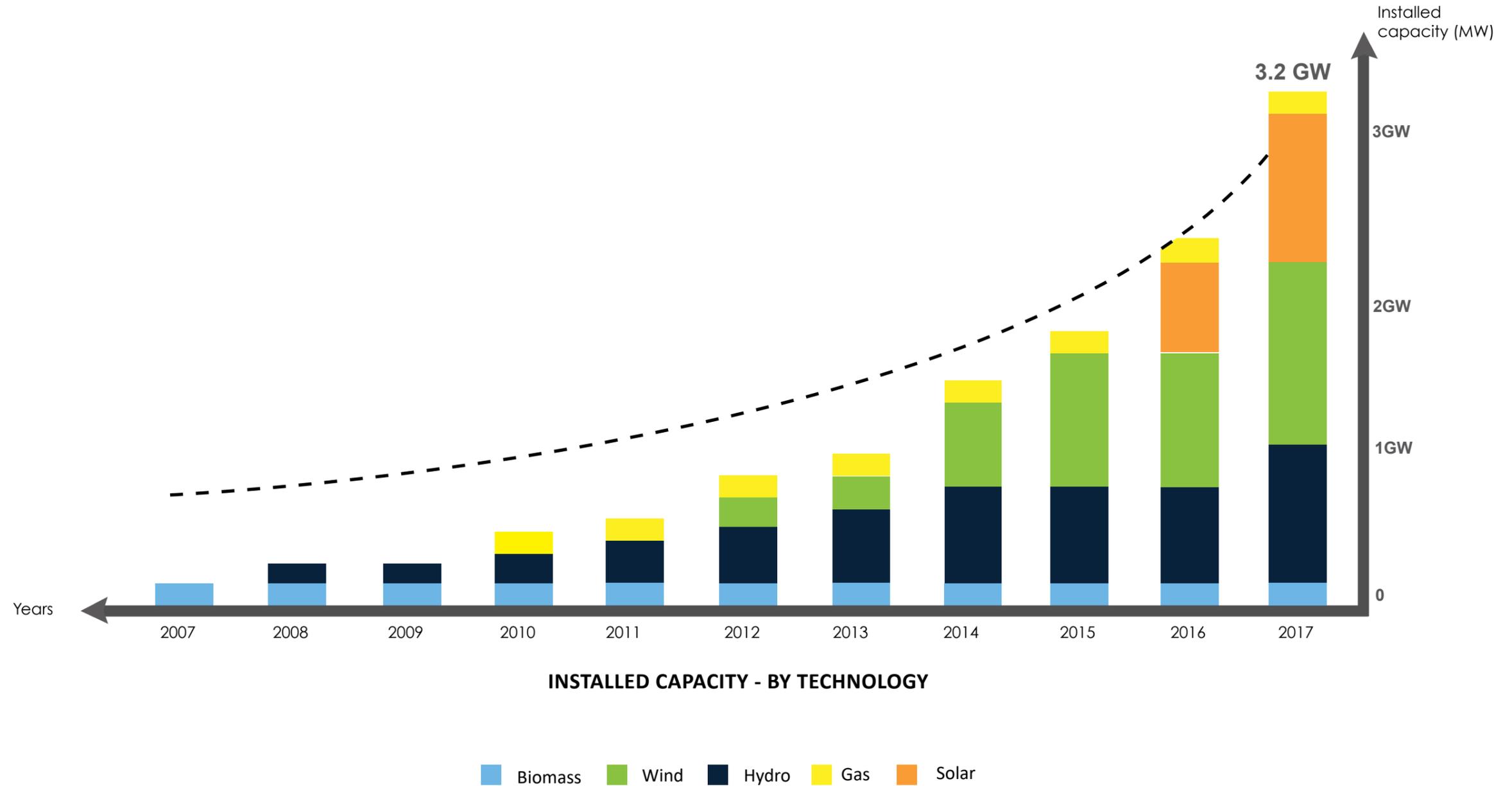
Endowment

- Amongst top 3 RE players by size in revenues
- A+ Rating
- Superior Technology adoption capabilities
- Complementary and Synergistic partnerships



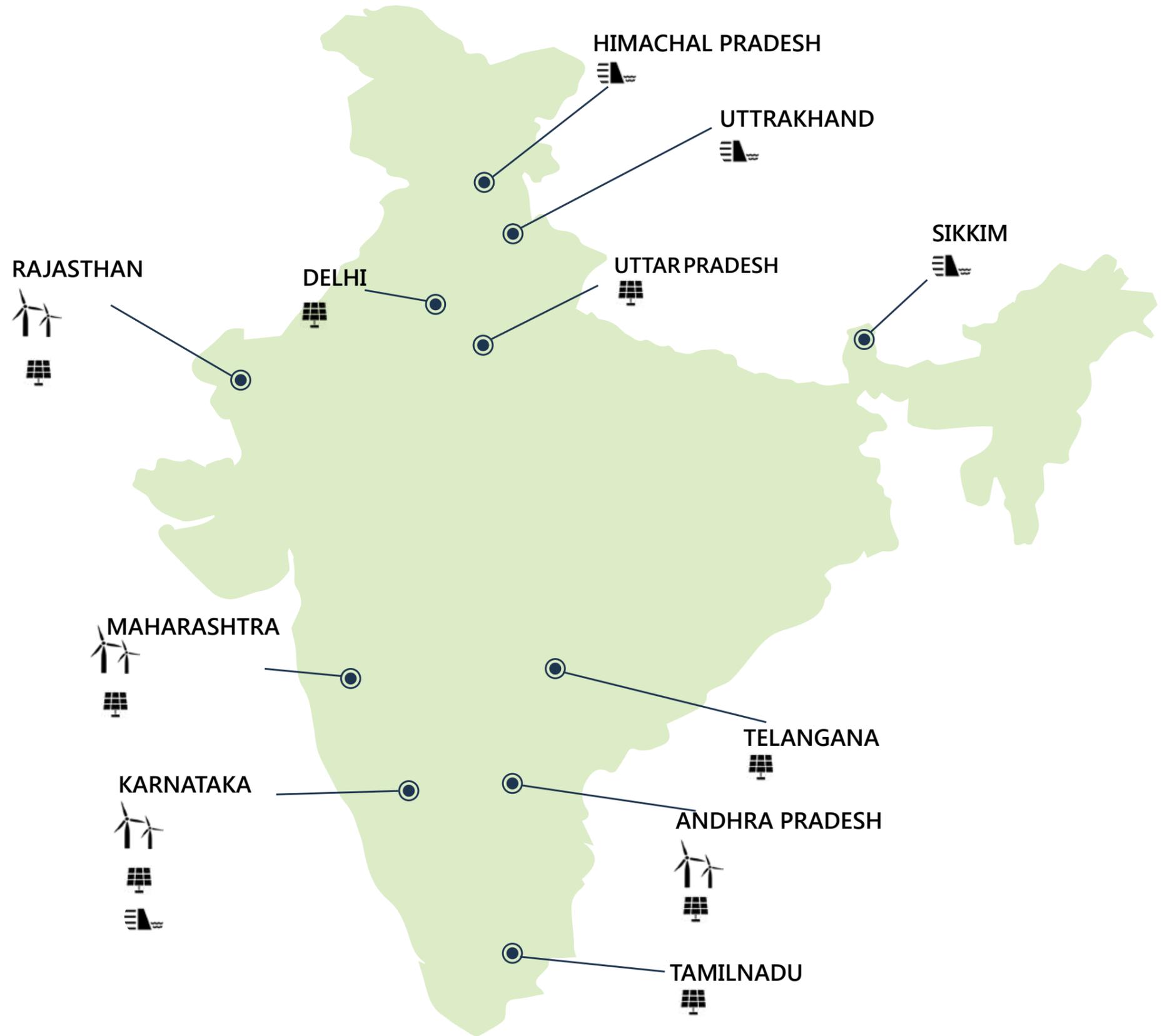
3.3 SIGNIFICANT RENEWABLE ENERGY GENERATOR IN INDIA

Beginning its journey with 40.5 MW biomass power generation in 2007, Greenko has multiplied its generation capacity by 80 times to 3.2 GW. This growth catapulted Greenko to be a significant RE generator in India, constituting about 3.2 % generating capacity existing in India.



3.4 GEOGRAPHICAL PRESENCE

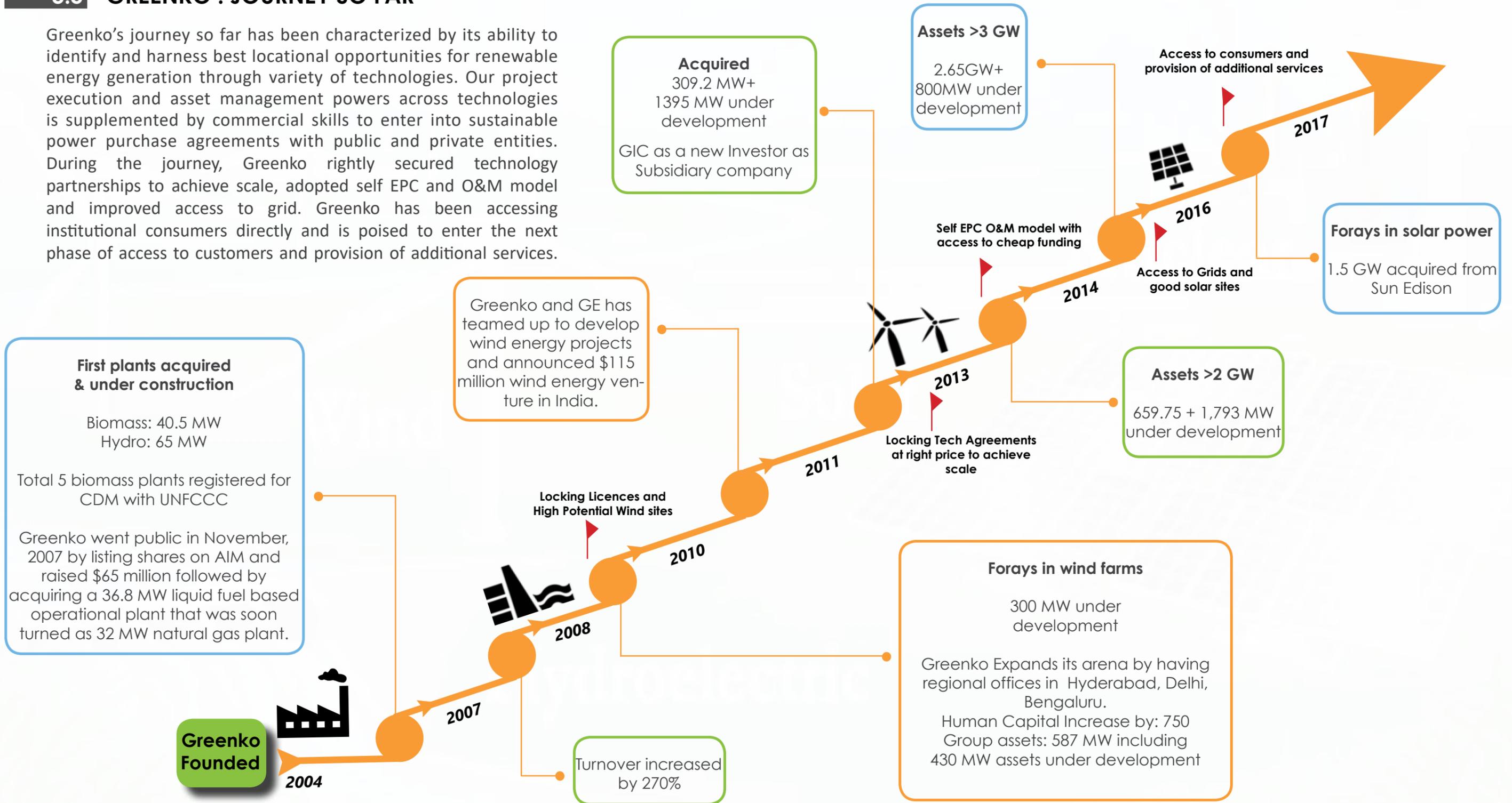
Greenko's operational assets located across India harness the best available renewable energy resources and infrastructure for evacuation. The locational advantage positions Greenko for further growth in the clusters.



Power plants	Capacity (MW)
Hydro	413.35
Wind	1,126.5
Solar	1,709.1
Total Capacity in 2017-18	3,248.95

3.5 GREENKO : JOURNEY SO FAR

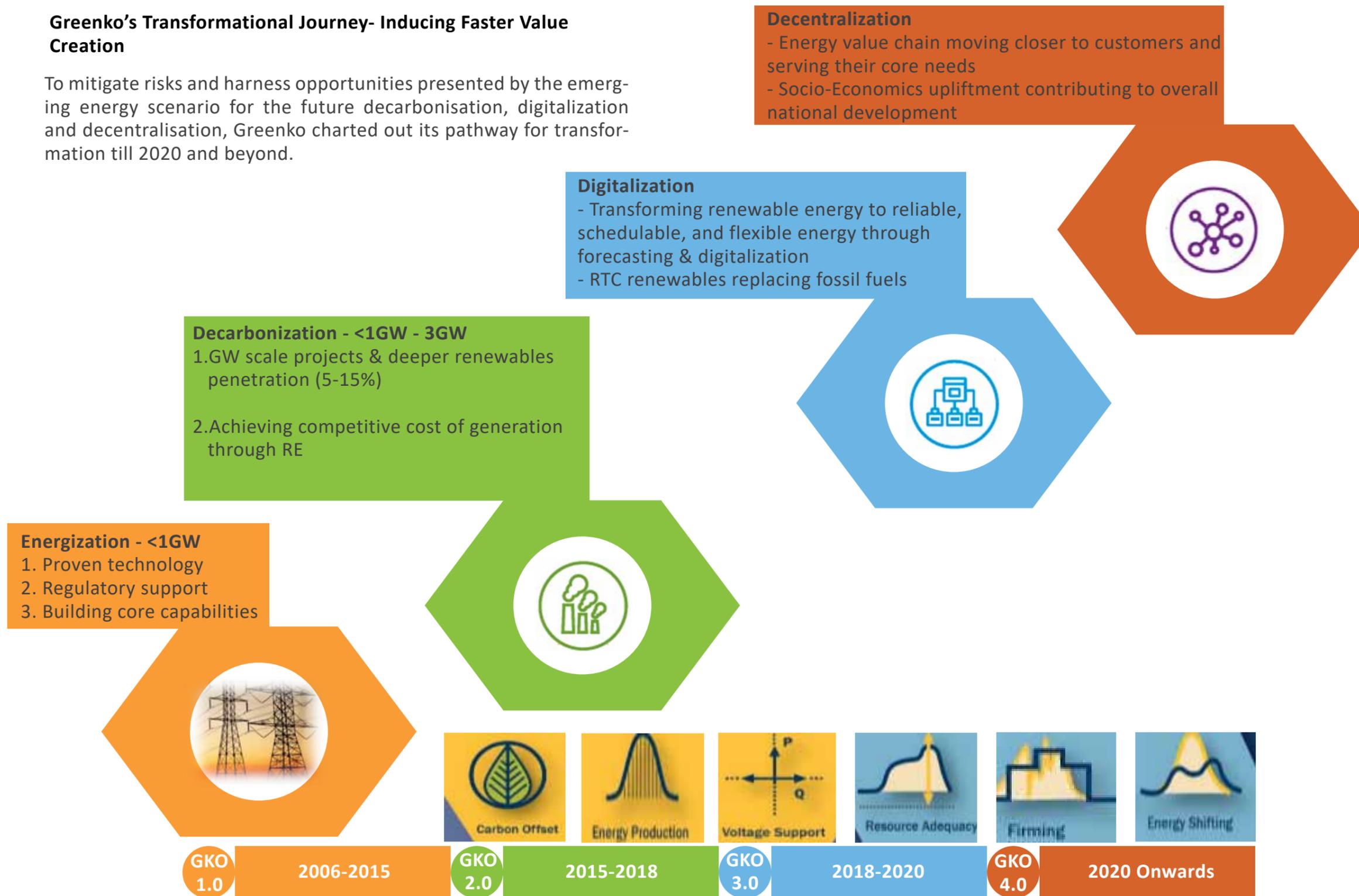
Greenko's journey so far has been characterized by its ability to identify and harness best locational opportunities for renewable energy generation through variety of technologies. Our project execution and asset management powers across technologies is supplemented by commercial skills to enter into sustainable power purchase agreements with public and private entities. During the journey, Greenko rightly secured technology partnerships to achieve scale, adopted self EPC and O&M model and improved access to grid. Greenko has been accessing institutional consumers directly and is poised to enter the next phase of access to customers and provision of additional services.



3.6 GREENKO TRANSFORMATION JOURNEY

Greenko's Transformational Journey- Inducing Faster Value Creation

To mitigate risks and harness opportunities presented by the emerging energy scenario for the future decarbonisation, digitalization and decentralisation, Greenko charted out its pathway for transformation till 2020 and beyond.



3.7 AWARDS AND RECOGNITION

Greenko has been recognized for its achievements in contributing to environment, society and economy. Proudly, Greenko has received multiple awards which are as follows:



UTTAM SURAKSHA PURASKAR Safety Award - 2017

Date - 09th September, 2017

Description - AMR Power Pvt Ltd received the “UTTAM SURAKSHA PURASKAR” Safety Award-2017 from NSC at Bengaluru.



National CSR Leadership Congress

Date - 28th September, 2017

Description - Greenko received the awards in the following categories.

- 1) Best CSR Impact Initiative Award and
- 2) Best Community Development Award



Conglomerate of the year 2017, TV5 Business Leadership Awards-2017

Date - 28th December, 2017

Description - Mr. Anil Kumar, CEO&MD, received “Business Leadership Award” from TV5 in recognition for excelling in the renewable energy sector.



Mr Vasudeva Rao Kaipa has been recognized as one of the top 50 Solar CFOs of the Solar Industry.

Date - 16th January, 2018

Description - SolarQuarter is India's leading magazine for the solar energy sector, covering the best and latest developments, trends and updates regarding projects, policies, business and technology from the solar energy sector.



National Power Leadership Award

Date - 9th February, 2018

Description - National Power Leadership Award was accorded to Greenko Group for its contribution to the Clean Energy sector and for being instrumental in construction of world's largest solar park in Kurnool District, Andhra Pradesh.



Golden Peacock Occupational Health & Safety Award for the year 2018

Date - 07th July, 2018

Description - Greenko Budhil Hydro Power Private Limited has been declared as the winner of Golden Peacock Occupational Health & Safety Award for the year 2018.



The background of the image is a blurred, blue-toned financial market display. It features various data points, including stock prices, volume, and percentage changes. A prominent candlestick chart is visible on the left side, and a line graph with a blue trend line is in the center. The overall aesthetic is that of a modern, high-tech trading environment.

4

VALUE CREATION
JOURNEY

4 VALUE CREATION JOURNEY

Greenko's value creation is founded on the demand for accessible, reliable and affordable clean energy to drive sustainable economic growth and societal advancement in India. Greenko's value creation is steered by its vision, mission and values.

Greenko's key value creation factors are its abilities to identify and harness opportunities, raise appropriate and adequate capital, execution excellence and agility. Greenko's approach to business lays great emphasis on powering India towards clean and sustainable future.

Overall, Greenko implements an integrated approach for effective management of all capitals to create value.

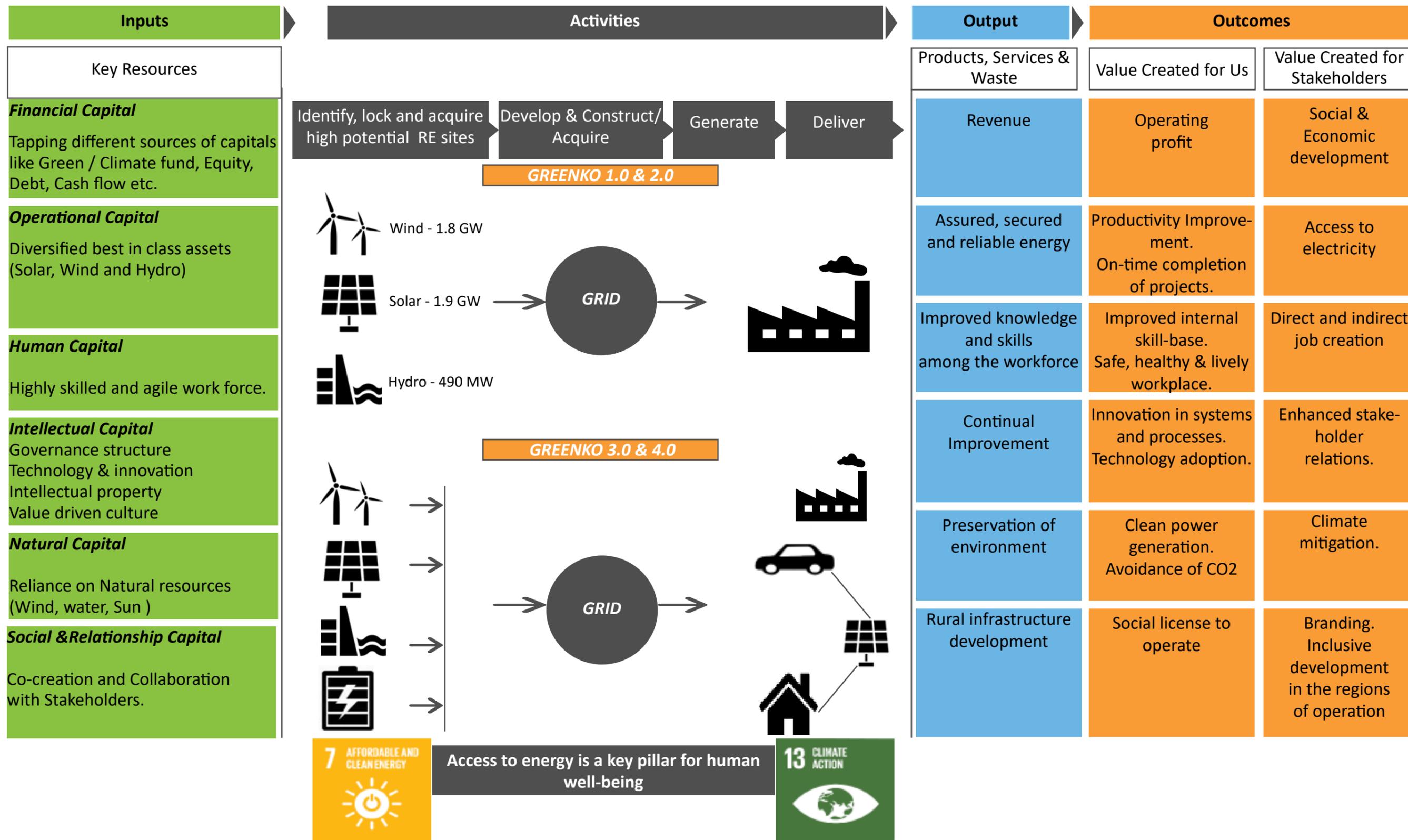
Greenko creates value through generation of power using wind, solar and hydro assets. In the Greenko's value creation model presented below, the resources at the input and output of the business model are grouped into six main capitals. The input capitals are transformed into output capital values through business activities. Thus, the group creates value for both external and internal stakeholders.

While the trust of stakeholder's steers access to adequate and appropriate capital, It's ability to identify and harness opportunities; endowment of diverse portfolio of clean energy assets; ability to retain and nurture the best talent; innovative spirit to harness disruptions and finally unflinching stewardship for environment and community, symbiotically act to generate desired outputs and outcomes. The output and outcome of Greenko's business include climate change mitigation; affordable, accessible, and reliable clean power; shareholder return and stakeholder trust. As the short, medium and long-term trends and developments can significantly impact its value creation abilities, Greenko has identified such risks and opportunities and has articulated its strategic approach and objectives to mitigate such risks and harness opportunities.

“Greenko's value creation factors are its abilities to identify and harness opportunities, raise appropriate and adequate capital, execution excellence and agility, amongst other factors. Greenko's approach to business lays great emphasis on powering India towards clean and sustainable future”



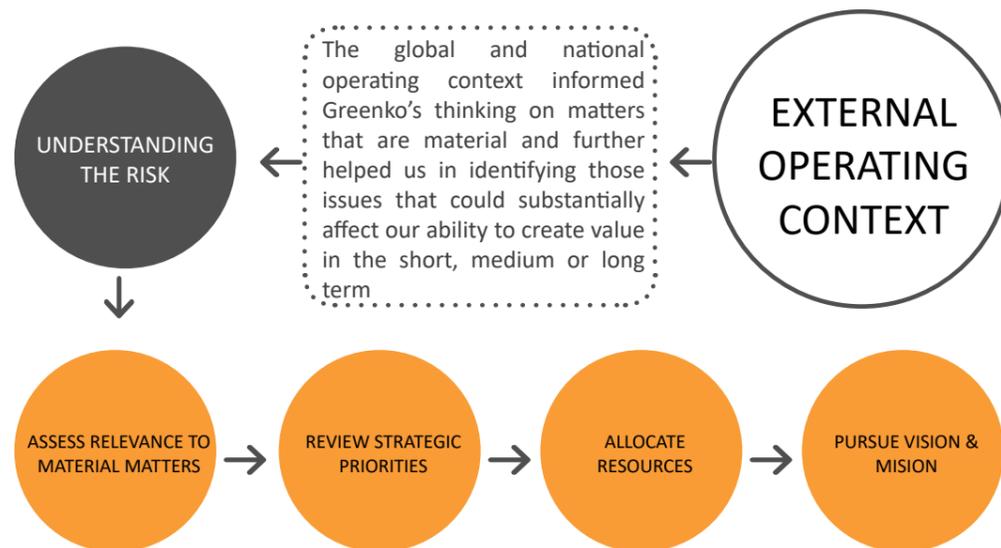
VALUE CREATION MODEL



4.1 EXTERNAL OPERATING CONTEXT

The evolving external environment relevant to Greenko's achievement of vision and mission, is continually monitored and analysed. During the reporting period, Greenko reviewed the external operating environment as detailed below, to identify its impacts and consequences both risks and opportunities, vis-a-vis value creation model.

“The external operating context is turbulent and challenging. The imperative of decarbonisation was the determinant in the first decade of this century. But now digitalisation and decentralisation coupled with increasing electrification of energy system is transforming the energy sector across the globe. Uncertain and uneven economic growth across geographies is adding to the complexity”



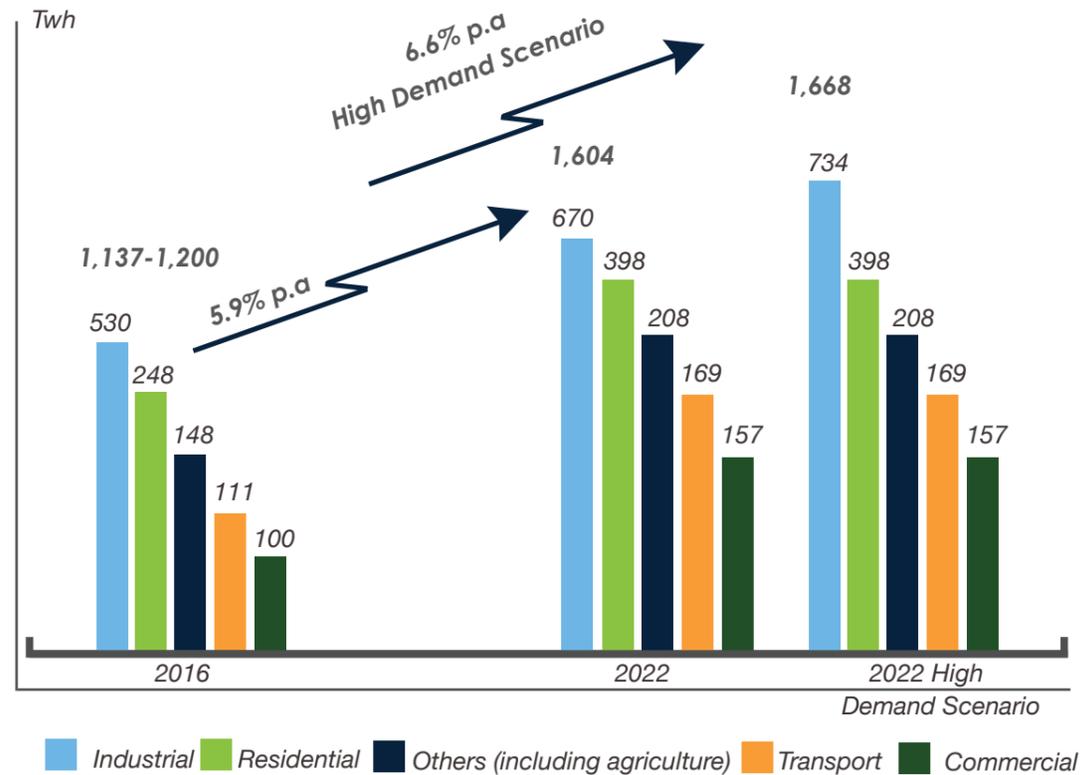
4.1.1 - Economic Growth

“After reaching 3.1 percent in both 2017 and 2018, global growth is expected to decelerate over the next two years....” as per the World Bank Group’s opinion on Global Economic Prospect. Amid moderating international trade and tightening global financing conditions, growth in emerging market and developing economies (EMDEs) is projected to plateau, reaching 4.7 percent in 2019 and 2020, up from 4.5 percent in 2018. Further on the regional level forecast on economic prospects in South Asia, the World Bank says “Growth in the region is projected to strengthen to 6.9 percent in 2018 and to 7.1 percent in 2019, mainly as factors holding back growth in India fade. Growth in India is projected to advance 7.3 percent in Fiscal Year 2018/19 (April 1, 2018-March 31, 2019) and 7.5 percent in FY 2019/20, reflecting robust private consumption and strengthening investment.

The robust global economy pushed up energy demand last year, which was mostly met by fossil fuels, while renewables made impressive advance, including in US. While demand for oil, gas and coal grew by 1.6, 3.0 and 1% respectively, where as electricity grew by 3.1%. Renewable energy contributed to quarter of energy growth.

The electric system across the globe is facing major head winds leading to a profound transformation. Technology and innovation, more than policy and regulation are potent forces accelerating the transition towards a more efficient and environmentally friendly industry.

The energy sector in India has been facing major challenges during the recent years due to sluggish demand growth. However, the Central Electricity Authority expects the demand growth of 7.1 % in the next year, mainly due to recently connected rural homes. While this is the immediate term scenario, in the medium and long term the electricity demand will increase by 5.9-6.6% per annum and potentially witness many structural disruptions, offering significant and exciting opportunities to Greenko.



Electricity demand 2022

4.1.2 - Decarbonisation

In response to addressing the challenges of climate change, decarbonisation of energy sector has become imperative. Transition to renewables that was initially propelled by international and national climate change mitigation mechanisms, has picked up momentum due to technological advances and scaled up business models. More than 60% of forecasted increase in worldwide energy demand through 2040, will be met by renewables. Growth in renewables in India has been outpacing global trends and this will continue for many more years. Phasing out old power plants due to challenges in meeting new emission norms and opening of power transmission and distribution sector for the private sector opens new avenues. The cost of renewable energy has significantly decreased due to technological progress in recent years. As generation shifts to more renewable sources, electrification creates further environmental benefits by shifting many end uses of energy (e.g. transportation and heating) away from fossil fuel sources, and improving energy efficiency. By 2020, with decreasing battery costs, improvement in EV utilization, and rising gas and electricity prices, the number of years to breakeven for EV ownership relative to traditional cars will drop in many markets including in India.

4.1.3 - Electrification of Energy System

During 2017, electricity generation increased by 3.1%, significantly faster than overall energy demand, and India and China together accounted for 70% of the global increase.

As per World Economic Forum, by middle of the century demand for electricity will grow substantially, making it the most important source of energy in the 21st century. The transition from a fossil-dominated power sector to electricity, represents a value that has maximum flexibility. Moreover, electricity from fluctuating renewable sources is carbon-free and often available in greater quantities than can actually be consumed. In the future, this surplus will be the true value of the energy transition, since it will enable other sectors to be electrified and thus decarbonized.

As decentralization increases so does the number of players connected to smart grids, which can better balance surplus and demand. This fully networked world will also increase the security of the energy supply and the stability of the system.

Intelligent connections amongst the growing number of decentralized players and thereby integration of the advantages of each player into the overall system, will be a significant opportunity.

4.1.4 - Digitalization

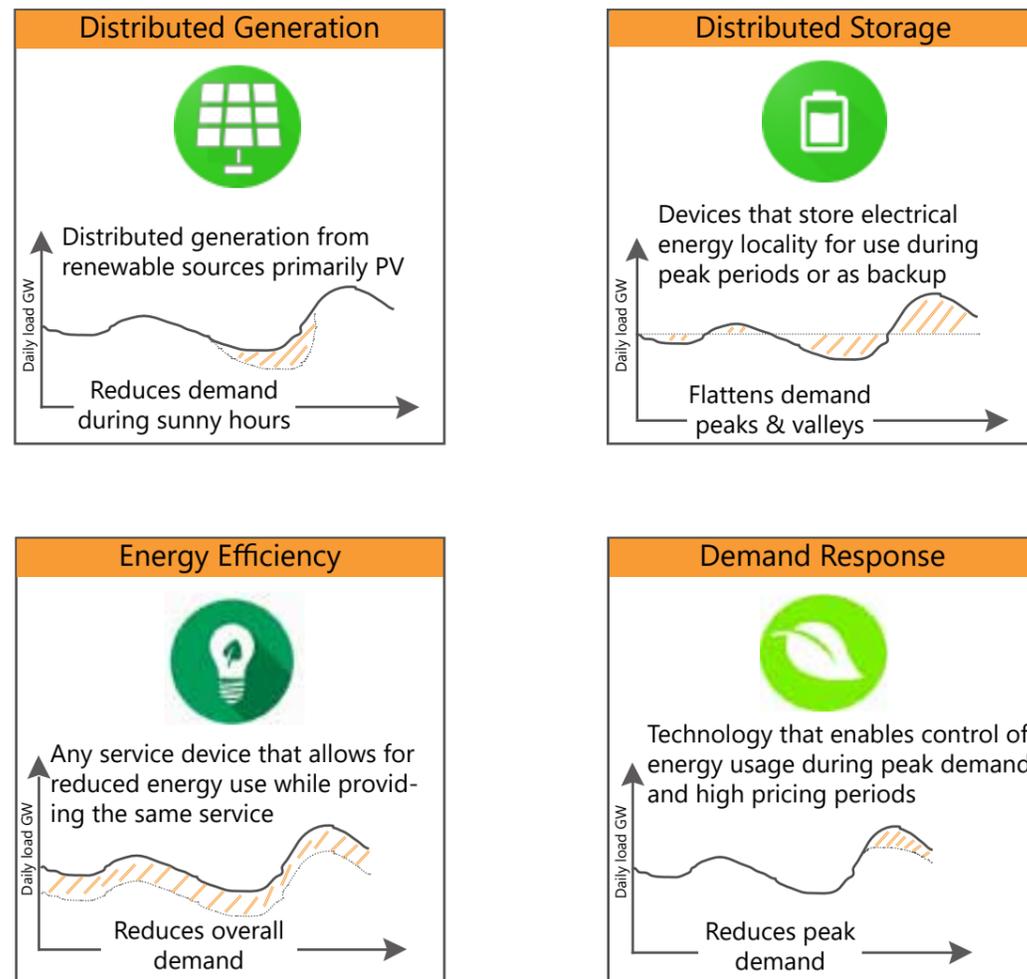
Digital technologies, smart devices and distributed resources will be critical to new business models. Properly shared and detailed data has the potential to improve customer experience on several dimensions, such as improving customer service through better access to more information and by enabling automated operations that will help customers flexibly manage their electricity demand and optimize costs. While use and impact of digitalisation in the distribution and use of electricity is well known, the potential application of these technologies in generation are immense. Digitalisation in conjunction with technological advances in renewable technologies are opening up new possibilities of Round-the-Clock utility scale renewable power generation.

A more areas of the value chain become digitalized (encouraged by declining cost of technology) and connected with data generating devices, the extent and the quality of grid and data will get enhanced. The potential use cases of what can be accomplished leveraging these enhancements will become increasingly interesting and valuable.

4.1.5 - Decentralisation

Decentralization refers to such configurations in which generation and consumption of electricity are in close vicinity. This is characterized by several technologies with different implications. Broadly these fall into the following categories:

- Distributed generation from renewable sources
- Distributed storage
- Demand response



Decentralisation offers resolution to many challenges that renewable energy faces and offers possibility of renewable power being the major source of power for all end uses.

4.1.6 - Challenges and Opportunities

Decarbonisation, Digitalisation and Decentralisation are paving the way towards a new energy system that will unlock significant economic and societal benefits.

Accordingly, Greenko keeping with its vision and mission and basing on its values, has adopted a graduated phase-wise approach to this new and emerging energy futures. At each phase, Greenko will be open to correction and exercise choice of new options. Greenko is confident of being as agile as it has been in the past and of adapting to evolving scenario. In this transformation to 3D futures, Greenko would calibrate its response as the transformation of the electricity systems unfold and evolve in the regions of its operation.

However, there is a risk for business and its ability to create value if there is disconnect between pace and manner in which these developments unfold with the policy and regulation. In various geographies, such scenarios could leave non-renewable and old - renewable generation assets or new-renewable and network assets stranded as customers defect from the grid or grid supplied 24X7 clean power. Hence identifying and taking the right actions is critical to accelerate and make the transition economically and socially beneficial.

“Decarbonisation, Digitalisation and Decentralisation are paving the way towards a new energy system that will unlock significant economic and societal benefits”

Greenko is following a road map from GKO 1.0 in 2015 to GKO 4.0 2020 onwards. Presently, the operating version, GKO 3.0 mitigates the risks and harnesses the opportunities presented by digitalisation and it involves:

1. Transforming renewable energy to reliable, schedulable, and flexible energy through forecasting and digitalization
2. RTC renewables replacing fossil fuels.

GKO 2.0 2015-18

Decarbonization

1GW - 3GW

1. GW scale projects and deeper renewables penetration (5-15%)
2. Achieving competitive cost of generation through RE.
3. Connecting renewables through HV to national grid without any regulatory support.

GKO 3.0 2018-20

Digitization

1. Transforming renewable energy to reliable, schedulable, and flexible energy through forecasting & digitization.
2. RTC renewables replacing fossil fuels.

GKO 4.0 2020 onwards

Decentralization

1. Energy value chain moving closer to customers and serving their core needs.
2. Socio economics upliftment contributing to overall national development.

The review results of external operating context presents many challenges to operating models GKO 2.0 and GKO 3.0. as below

- Pace of advances in RE technology - timing, nature, pricing

The uncertainties in the pace of development of storage technologies and their nature, the improvement in efficiencies and decrease in prices of solar modules and wind turbines and finally the smart grid technologies will pose challenges to Greenko's operating business models.

- Evolution of support ecosystem in the regions of Greenko's operation

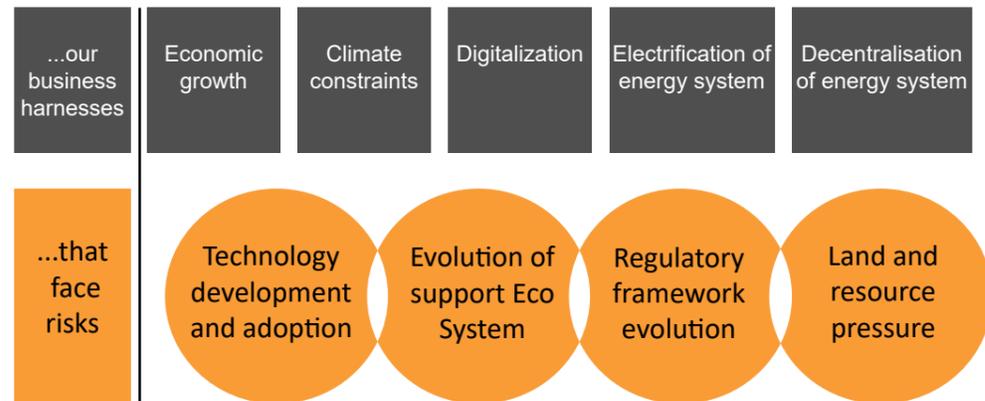
While the pace, timing and pricing of RE and digital technologies may be very conducive for harnessing for business advantage, the support ecosystem- viz., the EPC, Operation and Maintenance and other related ecosystem may evolve much more slowly than in some other geographies. In such a scenario, in specific context, Greenko may have to develop such ecosystem through 3P partnerships or depend on internal systems to supplement the lack of development of supporting ecosystem. In either case, it will have time and cost implications.

- Continued availability of land and other resources

Greenko's operating business models GKO 2.0 and GKO 3.0 are land intensive and these have to operate in India which is stressed for landmass resource. Greenko has addressed this challenge in the past and the technological improvements complemented by Greenko's 3P partnerships would aid in overcoming the challenge and further transforming this into competitive advantage.

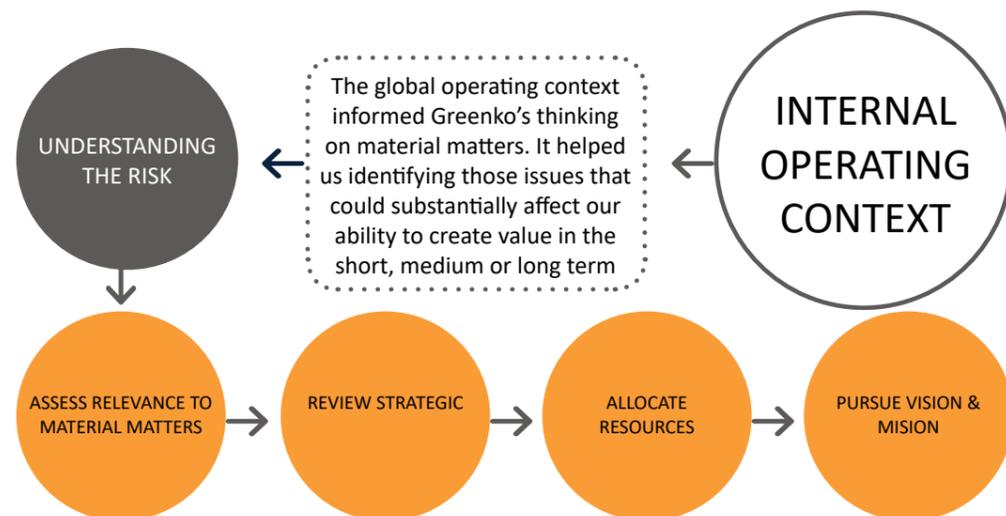
- Evolution of Regulatory framework

The competitive advantage of Greenko's business model, depends on the pace and nature of evolution of regulatory framework in India in incentivising reliable, schedulable and flexible renewable energy generation or unfettering the energy markets.



4.2 INTERNAL OPERATING CONTEXT

“Greenko has significant strength in efficient and effective project execution and operation; and is experienced in effectively leveraging public-private-people partnerships in pursuit of its vision. The agile Greenko organization and its people have played a big role in transition from GKO 1.0 to GKO 2.0. However, it could face challenges as it transforms to next phase. Besides, the organization has to complement and supplement its expertise in its journey to GKO 3.0 and GKO 4.0”



4.2.1 - Stakeholder trust

First amongst Greenko values is stakeholder inclusion at all levels and in all decisions. In fact, public-private-people partnership has been the working norm in project execution and operation. This along with transparency, Greenko believes is the foundation of trust it has gained amongst all stakeholder groups and this trust will always be renewed as Greenko pursues the transformation journey.

As the operating business model graduates to GKO 3.0, Greenko may have to work with present suppliers and contractors to upgrade their skills, as also build new partnerships. The engagement with market regulators, institutional customers and then on with retail customers, would be qualitatively different.

4.2.2 - Agile organization

Greenko's easy transition from GKO 1.0 to GKO 2.0 has become possible due to the agility of the organisation. Agility arises from Greenko values i.e. Innovate, Include and Excellence, and is reinforced through many policies and programmes. However as the business steers through transformation, the imperative of, attracting, retaining and nurturing the people has to be balanced with the spirit of innovation

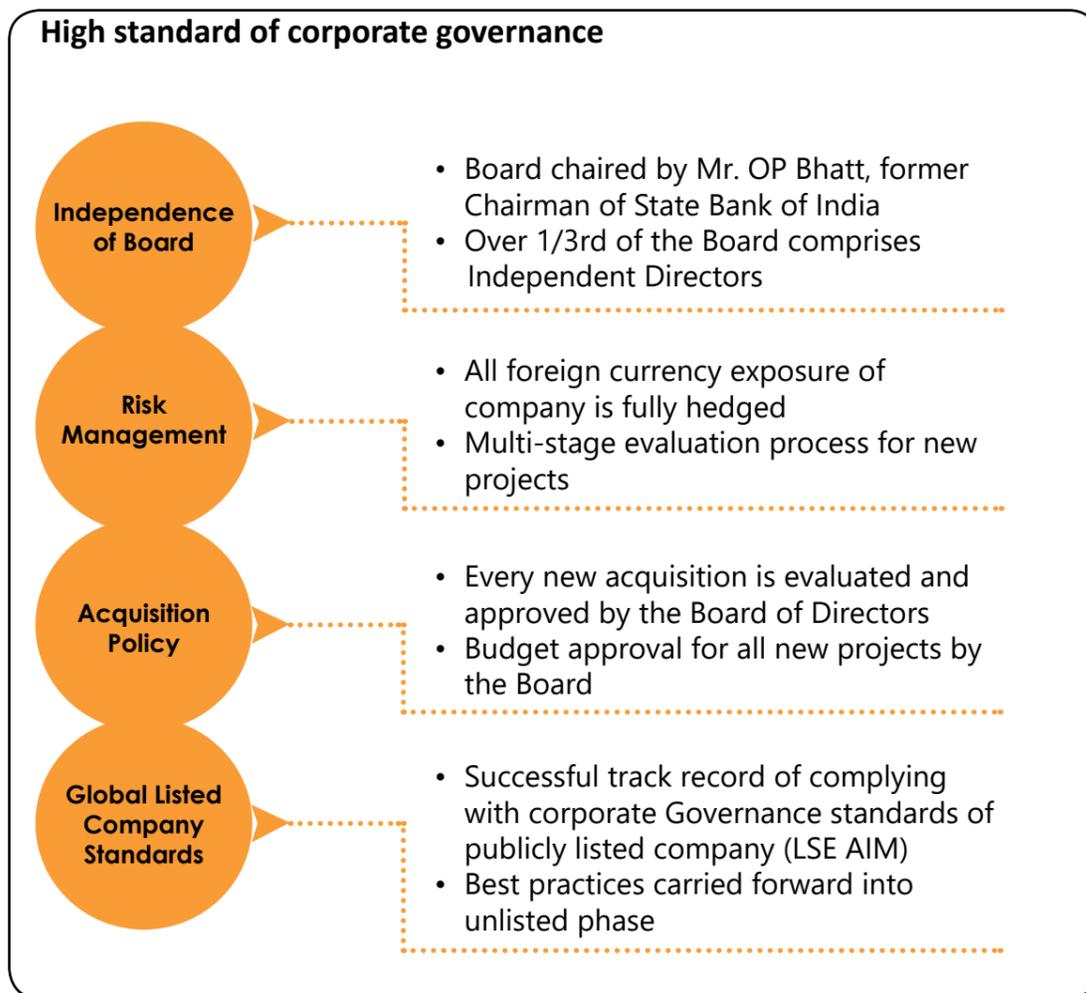
Never has there been a time in the history when the premium of achieving world-class IT performance has been higher. Full realization of the potential is only possible if Greenko,

1. Reallocates resources from transactional focus to value adding
2. Embrace digital transformation
3. Lead the organisation on the information and analytics transformation journey and
4. Adopt customer-centric service design and delivery principles

Greenko must deploy digital technology to continuously transform its service delivery model to improve agility and to be able to respond to shifting demands and opportunities.

4.2.3 - Adherence to best standards of governance and responsible stewardship

Greenko follows best practices of governance and responsible stewardship. Ethics, Transparency and Accountability is the hallmark of Greenko's governance framework and is an important part of Greenko values. Responsible stewardship is the way Greenko manages business in a sustainable manner and measures performance against own targets and international benchmarks. Greenko adheres to its Code of Conduct that outlines ethical behaviour along with health, safety and environmental management.



4.2.4 - Transparent and real time information for decision making

Greenko deploys advanced information technology to monitor the progress of project execution and asset management and makes such information available to all stakeholders in real time. This avoids delays, conflicts and friction in decision making. It releases the time of leaders at all levels and makes time available to focus on material issues for growth and transformation. This process has to be continued and has to be spread across all levels. The outcome of this process is sustainable only if there is total buy-in, change in culture and upgradation of skills.



Project Execution Monitoring from Admin Office

Project Execution and O&M with Reliable Technology Enabled System

Grid Ownership

- 42 grid sub-stations sufficient for over 5GW of capacity are owned by the company
- Greenko owns and maintains evacuation transmission lines
- Over 500km of high voltage transmission lines (>110kV)
- Over 1,100km of 33kV transmission lines

Project infrastructure ownership

- Key infrastructure components are owned by Greenko in all projects
- Project land is on a freehold basis
- Company has complete control on right of way land
- Control on infrastructure allows better monitoring and maintenance, building of additional capacity for future expansion and co-location
- Development of large clusters is done on a “Smart Hub” model, which ensures inclusive development
- Skill development and training programmes are organised for locals by company and technology partners
- Locals then employed in execution and operations
- Examples include Rayala (Wind) and Kurnool (Solar)



Turbine Generator - Dikchu HEP

4.2.5 - Technologically capable superior platform

The Greenko platform is broad portfolio of technologies, business models and geographies. In generation, Greenko has deployed wind, solar and hydro of different technologies, scales and in many geographies. Besides, it has been using advanced information and communication technologies to monitor and manage the execution of projects and operation of assets. While its success in deploying different technologies renew Greenko’s confidence, the organisation realizes the challenge of technology adoption and upgradation in transformation of Greenko’s business models for GKO 3.0 and GKO 4.0.

4.2.6 - Disciplined Project Development

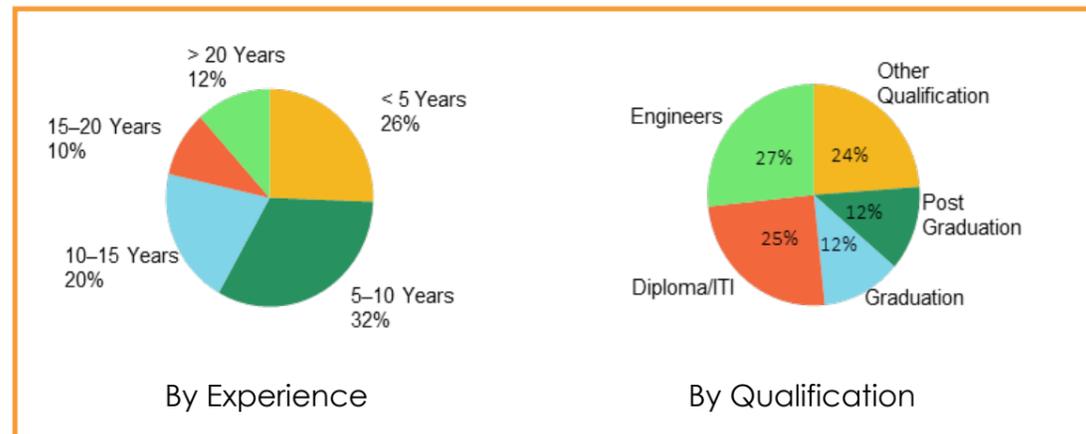
In project execution, Greenko follows very disciplined but agile approach. Discipline is one of the Greenko values. Greenko through its disciplined approach sets an example to its suppliers and contractors and is able to execute projects on time within budgeted cost and time; and operate the projects efficiently characterized by better tariffs, less penalties and timely revenue realization. As the transformation of business model would demand more of innovation and agility, it is important for the organization to strike a balance with discipline.

4.2.7 - Experienced and largest renewable energy team

Greenko team has significant experience in renewable energy project execution and asset management. This involves arriving at as well as managing different kinds of commercial arrangements with public and private entities, managing revenue and distributing value amongst stakeholders. This experience with technologies, people, regulators, distribution utilities and governments will be very critical in Greenko’s business growth as well as transformation to GKO 3.0 and GKO 4.0. But the technological and regulatory challenges will be significantly different and the electricity markets will pose new challenges. Accordingly, the experience and competencies during and post transformation will have to be complemented.



4.2.8 - Team Greenko



- Over 2000 employee strong organisation
 - ~40% with experience of over 10 years
 - 70% of the workforce, i.e. 1,580 employees are engaged asset management
- HR strategy ensures focused and need based learning and development interventions
- Comprehensive and structured process for development of trainees
 - Equal opportunity for diversely skilled employee base
 - Well defined career progression

Greenko and its internal operating context is well placed to cope with challenges of turbulent external environment and leverage opportunities. This is the business model transformation to GKO 3.0. The superior technology platform combined with the organization's agility and expertise in different RE technologies and experience in varied geographies would steer Greenko to success in this transformation journey. It will have to address the challenges of acquiring expertise in storage systems and in acquiring skills in advanced technology adoption and customer centric culture.

4.3 OUR STRATEGIC APPROACH

The scanning and analysis of external and internal operating environment further guided Greenko to identify strategic directions and approaches to

- mitigate identified risks
- harness opportunities
- reinforce our strengths and overcome weaknesses
- pursue vision and mission while adhering to values

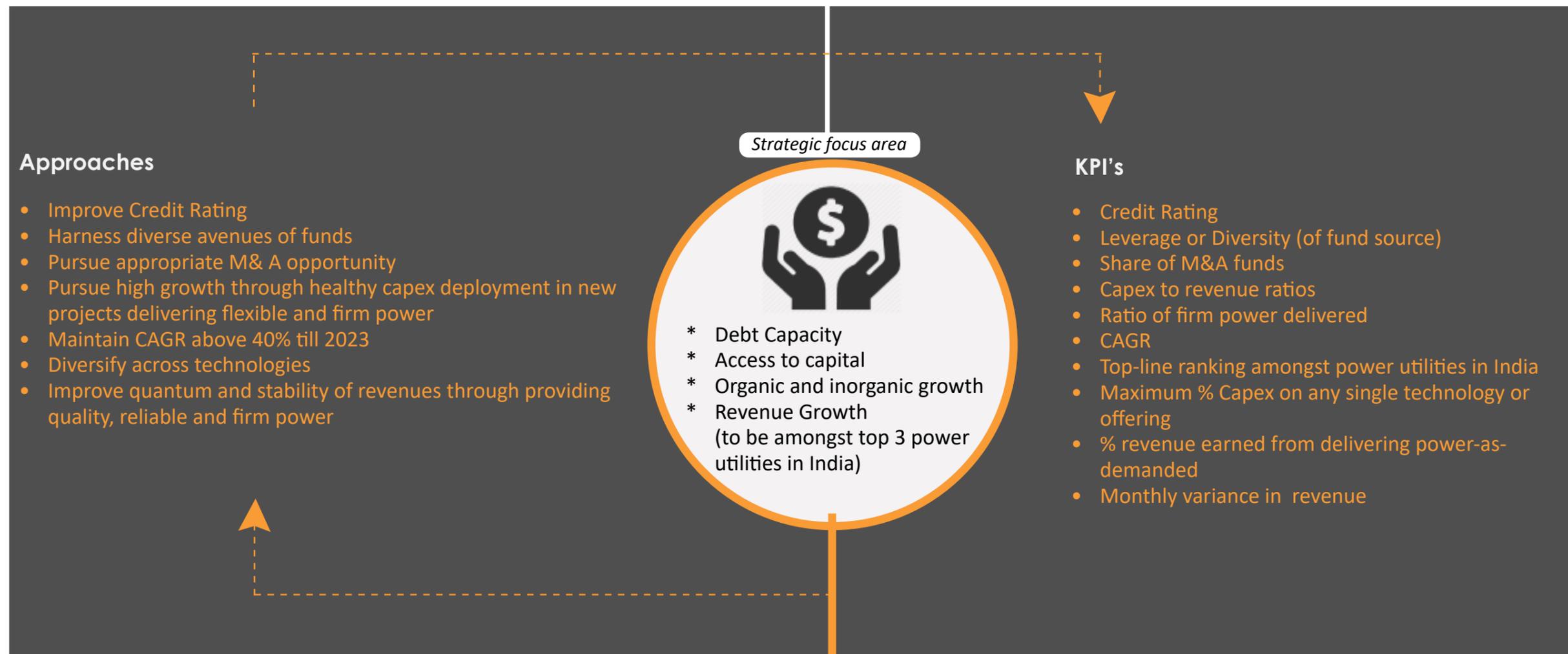
Greenko has derived 6 Strategic Directions, one under each capital.

These Strategic Directions are further divided into Strategic approaches and key performance indicators. These strategic directions, approaches and performance indicators are designed to steer Greenko to GKO 3.0 and stay the course in the face of risks and opportunities in the operating environment.



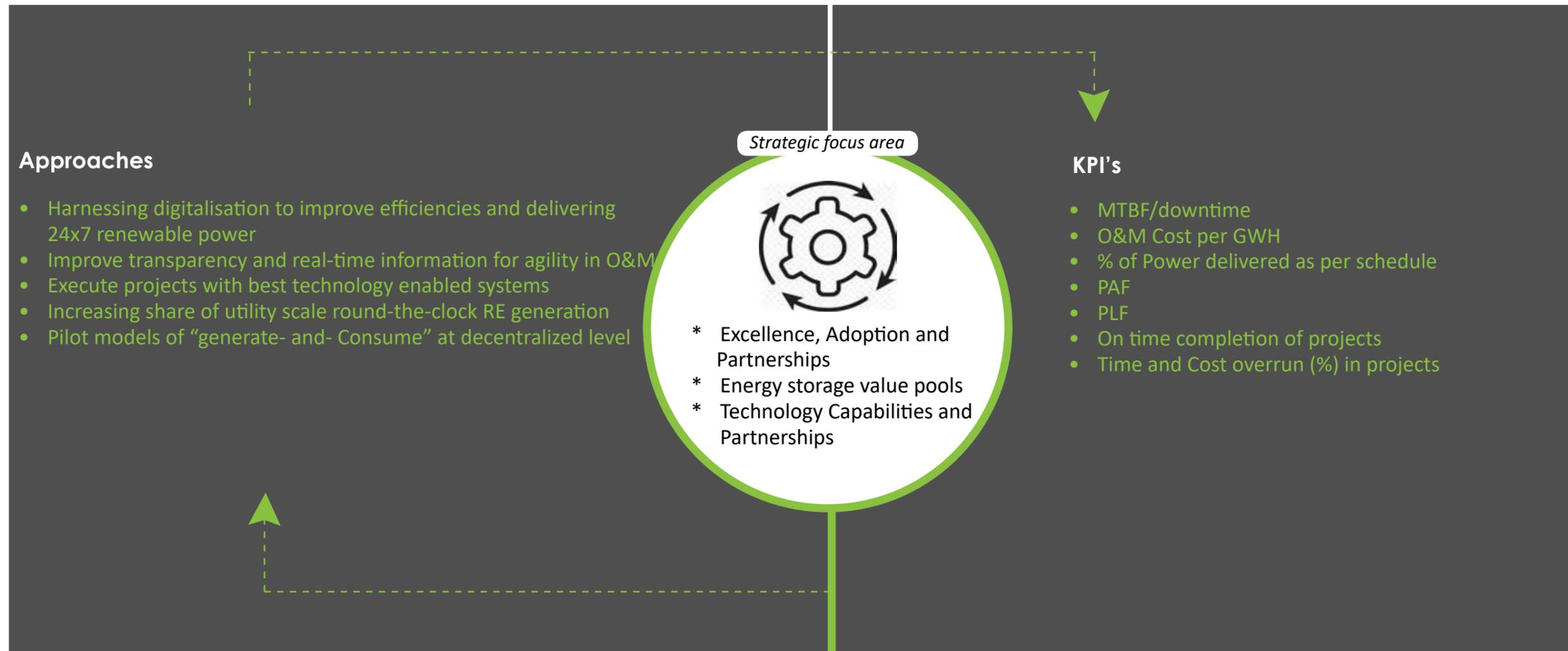
4.3.1 - To preserve and enhance value for shareholders

Commitment to integrity and transparency is the corner stone of the continuing trust enjoyed by Greenko. In the pursuit of its vision and mission, Greenko will have to tap diverse sources of capital and pursue both organic and inorganic growth to continue to be amongst the top 3 power utilities in India. Greenko's strategic focus in preserving and enhancing financial capital is to reinforce the existing strengths and to stay on course to gain stakeholder trust. However the operational and strategic risk management challenges could be qualitatively different due to uncertainties in technology and regulatory framework evolution.



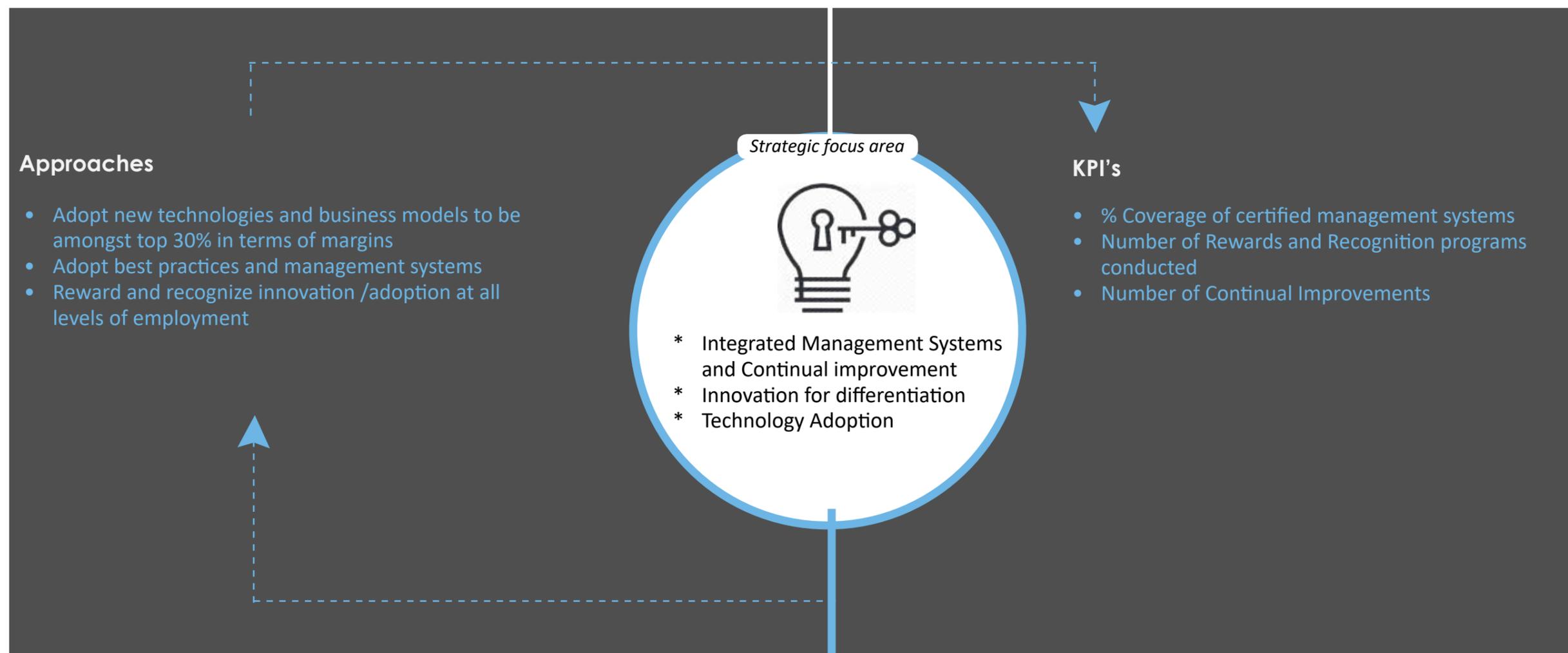
4.3.2 - To preserve and enhance operational asset value

As the renewable energy is growing in the country's energy portfolio, the grid, consumer and generator have to address qualitatively different challenges. At Greenko we have been preparing ourselves to harness the diverse value pools that are available in Indian energy systems. Some of these may involve a marginal improvement and some other may involve large projects. Over and above this, Greenko continues to be agile and ready to adopt technology as per the demands of the business. This has implication for our technology, R&D, HR and Operations functions. Accordingly, the KPIs not only track and evaluate transition to GKO 3.0, viz., generation of reliable, schedulable and flexible power by the continuation and reinforcement of project and asset management capabilities but also include tracking of performance of the above mentioned allied functions.



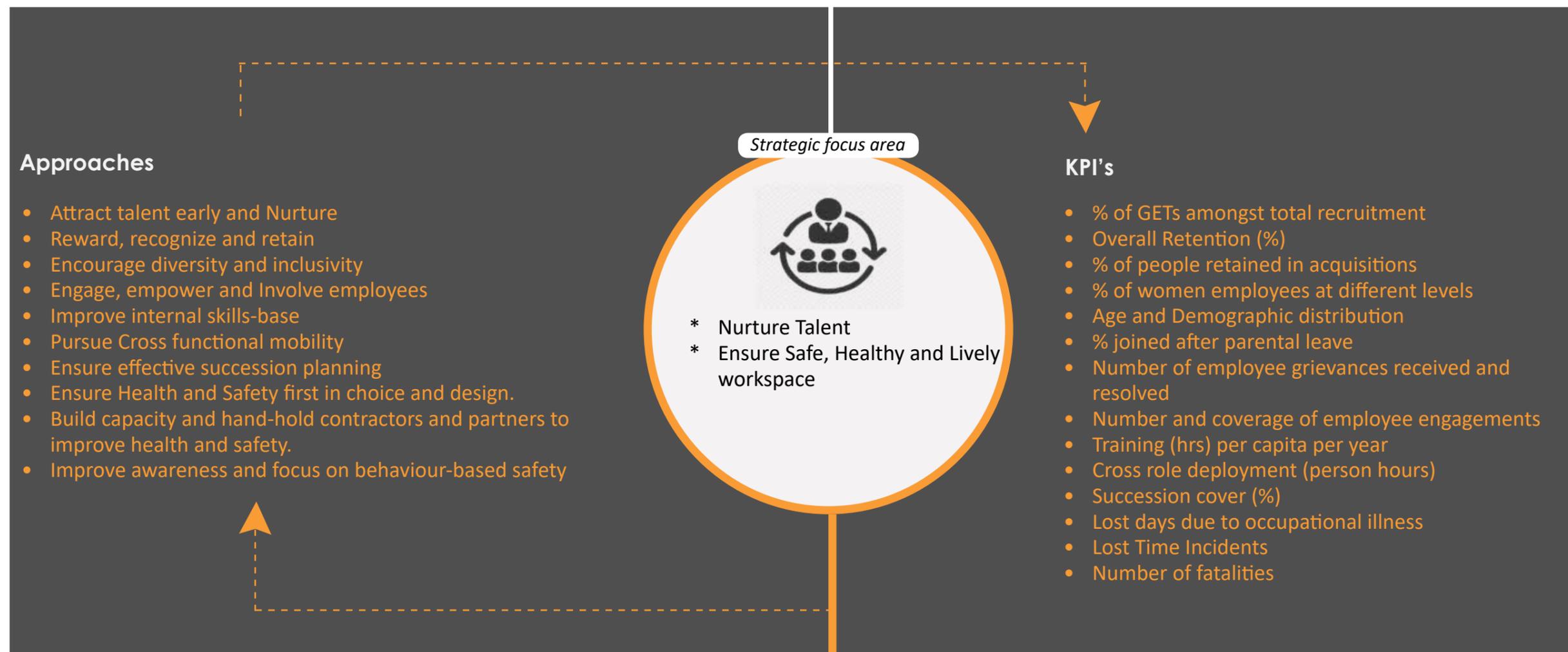
4.3.3 - To preserve and enhance Innovation and System

Innovation at Greenko is continuous and targeted to adopt and adapt to appropriate technologies. It is also about system integration and geography specific customization involving soft and hard approaches. Accordingly, intellectual capital at Greenko is cross functional, involving systems, processes and standard operating practices. Presently, Greenko monitors the progress on “innovation for differentiation” through KPIs (i) adoption of best practices and management systems and (ii) reward and recognition for innovation /adoption at all levels of employment. However, the tracking of adoption of new technologies and business models, differentiation and competitive advantage thereon, and revenue generated through deployment of such models, will be introduced in subsequent periods.



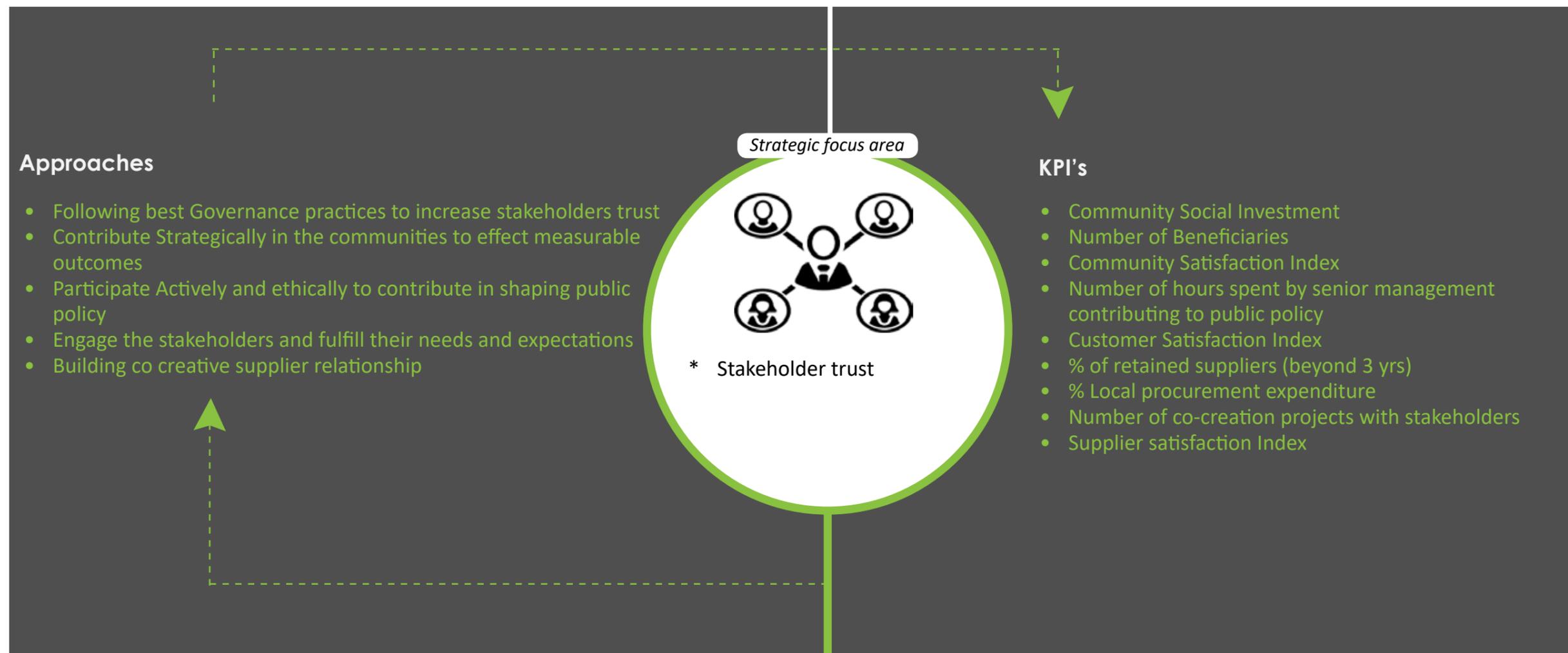
4.3.4 - To preserve and enhance our People's Value

People are at the center of Greenko's pursuits. Nurturing the talent and caring for people is a principled commitment at Greenko - it involves attracting, training, rewarding, recognising and growing. Fair, Safe, Healthy and Lively work place is furthering such commitment. As the sector is likely to face significant disruptions and challenges, it is imperative that our people are motivated, committed, agile and innovative to enable the company to navigate through turbulent trends and harness opportunities. While fair, safe and healthy work place continues to be the pursuit of Greenko in its transformation journey, the challenges of lively and flexible work spaces and innovative and digitalised work spaces are some elements on which Greenko has to work upon. The KPIs tracked by Greenko has relatively more emphasis on fair, safe and healthy work space, as compared to the indicators related to succession cover, cross role deployment and the flexibility and sustainability of human capital.



4.3.5 - To preserve and enhance our contribution to Society

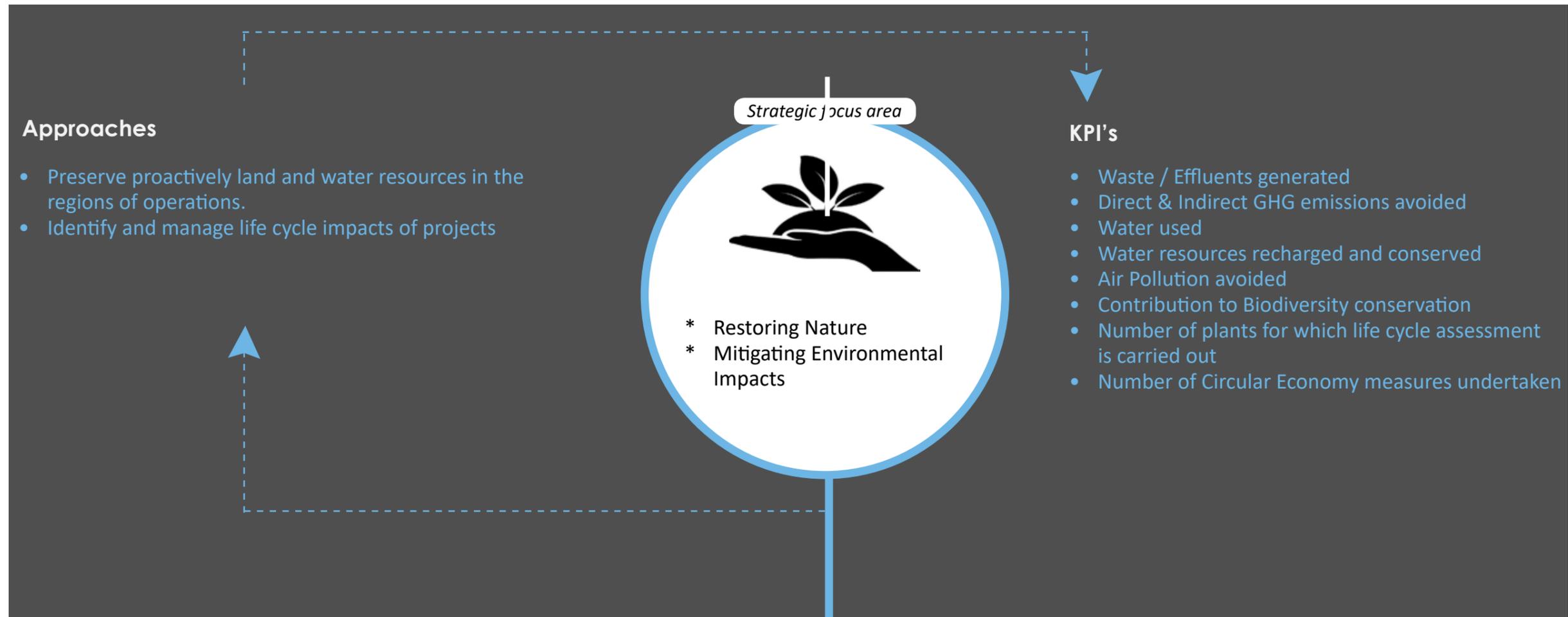
Greenko's business involves operations that are land, water and ecology intensive and is situated amongst people and is intertwined with their livelihood. It touches the lives of many during operations. Greenko considers the nature of its operations, as an opportunity to touch many lives and contribute. Greenko's partnership with communities enables it to deploy projects on time, manage assets efficiently and provides Greenko the broader social license to operate. Greenko tracks the value created as also its ability to sustain it vis-a-vis, social and relationship capital. The KPIs to track share holder trust include, (i) % of time spent by the board in oversight of strategy (ii) risk as % of EBITDA (iii) number of whistles blown and addressed satisfactorily. The KPIs to track community relations are (i) community social investment (ii) number of beneficiaries (iii) social return on investment and (iv) community satisfaction index. The other KPIs measure our proactive participation in contributing to public policy which also mitigates the risk of regulatory environment evolution. Further, the KPIs relating to suppliers and contractors as also customers address the risk- evolution of ecosystem to support business transformation and the new challenge of customer centricity that is pivotal in GKO 3.0.



4.3.6 - To preserve and enhance Nature

Greenko's business inherently preserves and enhances nature. Greenko is committed not to harm nature in all its operations and along the value chain to the extent practicable. In addition, Greenko is proactively contributing to conservation of ecosystems and managing across life cycle of its projects and assets. Presently Greenko monitors its contribution to reduction in GHG and other gaseous emissions. Further, Greenko is conscious of the fact that its operations are land intensive and to some extent water intensive. This factor poses a strategic risk to its business. Accordingly, Greenko pro-actively undertakes preservation and restoration of quality of land mass viz., arresting soil erosion and salinization and water resource preservation viz., watershed management and water body rejuvenation. Accordingly, the KPIs keep track of value creation through natural capital.

Greenko is aware of life cycle impacts of its assets and challenges in generating equipment's end-of-use and restoration of project site. Greenko is committed to adopt best practicable measures to mitigate such potential impacts. The KPI's-Number of plants for which life cycle assessment is carried out and Number of circular Economy measures undertaken, monitor proactive steps are undertaken by Greenko for resource sustainability.

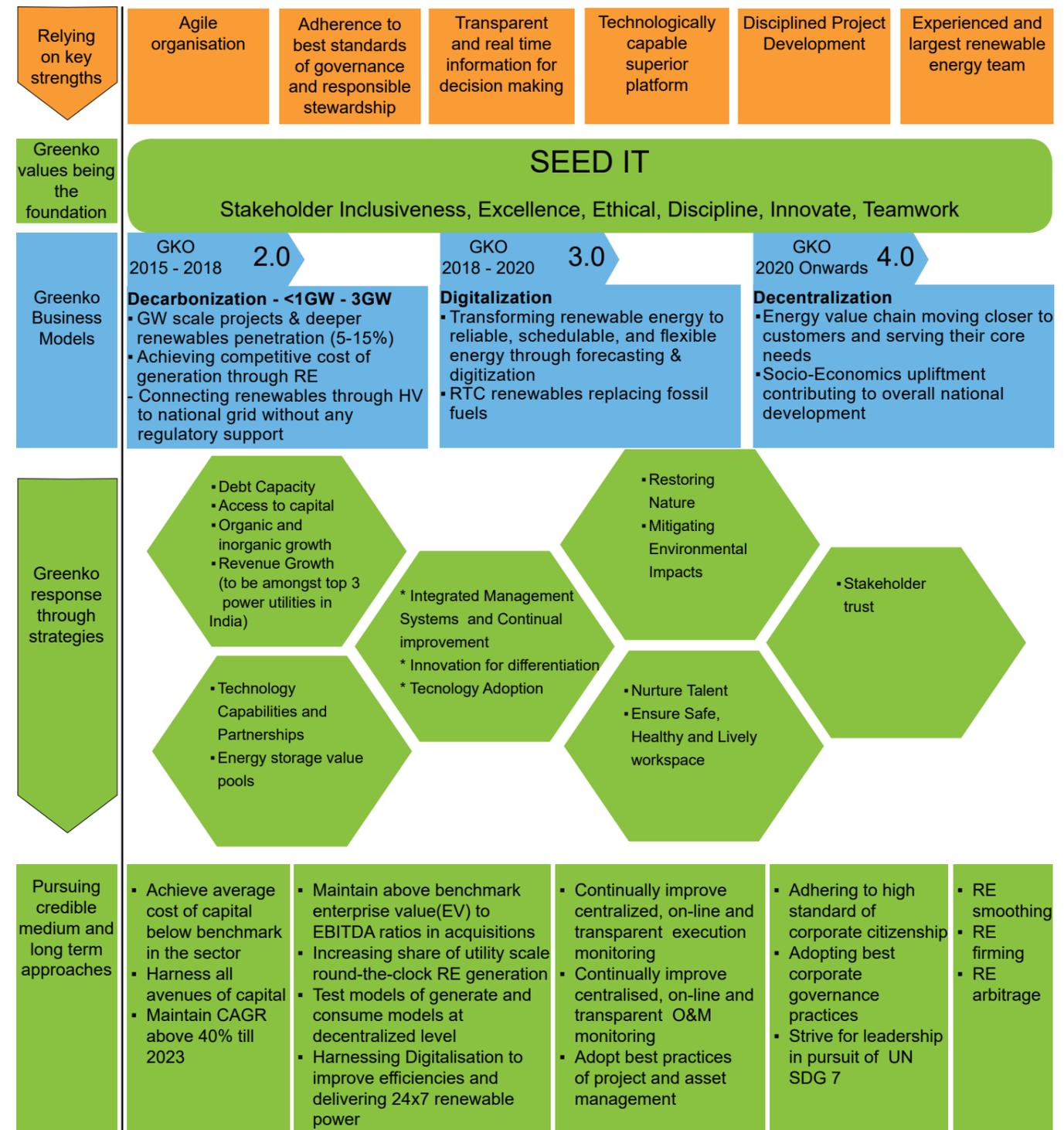
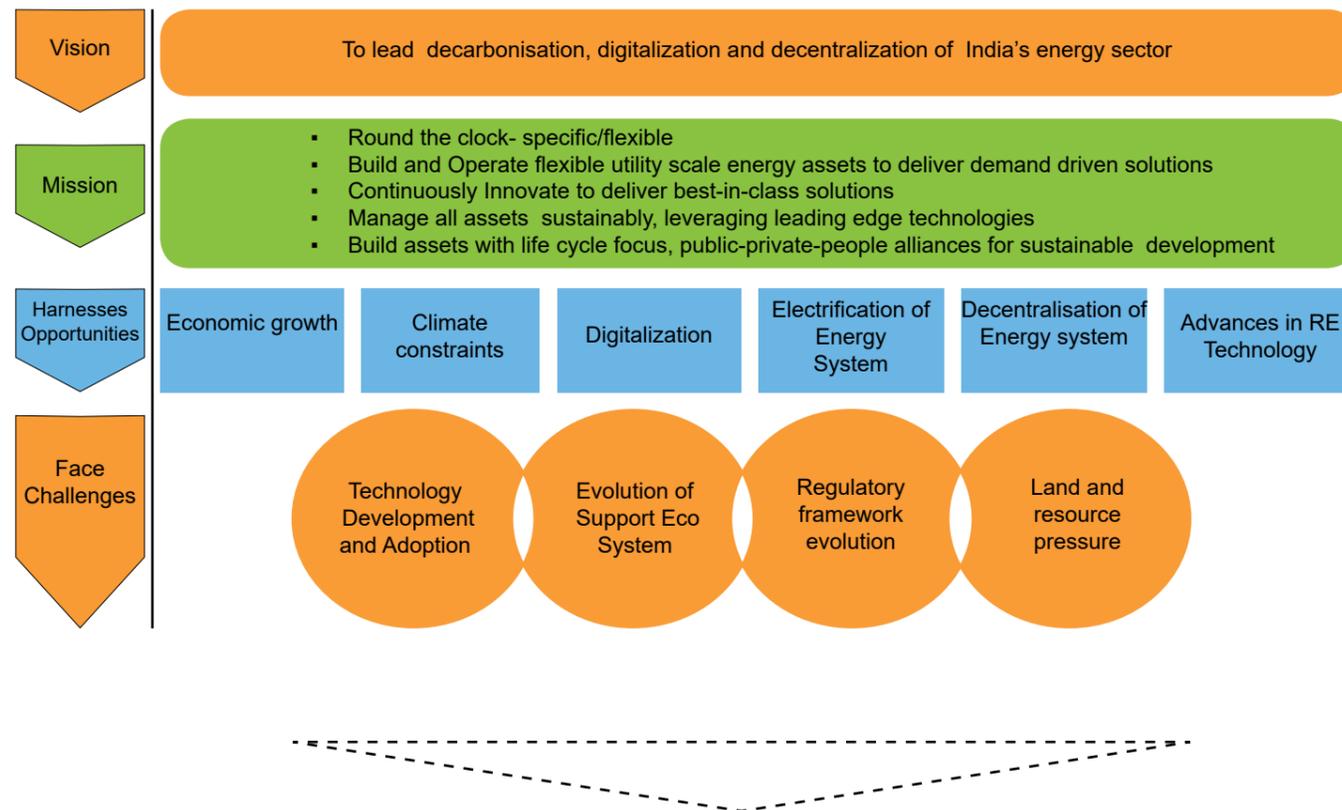


4.4 VALUE CREATION THROUGH PURSUIT OF VISION AND MISSION

While Greenko's values are ONE CONSTANT in value creation journey, the compass is vision and mission and the strategic focus steers navigation across turbulent external environment. Greenko needs to focus its attention and action on these strategic areas to mitigate the risks and harness opportunities presented by external and internal context. Also, some of the strategic focus areas represent the reinforcement required to preserve and enhance value creation ability. Further, the strategic approaches and KPIs are the means to deploy the strategies effectively.

Pursuit of Vision and Mission and Creating Multi Capital Value

Greenko Business Context and Model



We continue to pursue our mission and vision

4.5 FUTURE READY ENERGY UTILITY

Greenko views the digital revolution and decentralization as an opportunity and is in the process of transforming its business models to GKO 3.0 - transforming renewable energy to reliable, schedulable, and flexible energy and GKO 4.0 - Energy value chain moving closer to customers. To Greenko, it is continued pursuit of its vision *“To lead Decarbonization, Digitalization & Decentralization of India’s Energy Sector”*.

The digital revolution as well as renewables, distributed generation, and smart grids are triggering new business models and regulatory frameworks. The energy markets and competition for customers is shifting to the online channel. Also, the Internet of Things is driving new product and management options. Digital companies and start-ups are disrupting the landscape, while governments and regulatory bodies seek to encourage smarter measuring systems and greener standards for generation and consumption. Besides, digitalization has offered enormous opportunity to manage generation more efficiently and in the case of renewables it offers options to generate reliable, schedulable, and flexible energy. To thrive amidst these challenges, the utility of the future – Greenko, will be a significant digital system. Accordingly, GKO 3.0 and GKO 4.0 have focus on transforming its organization and business as demanded by various developments of digitalization and decentralization of energy system. This transformative journey has plans for enhancements in productivity, reliability, safety, customer experience, compliance, and revenue management, while significantly contributing to mitigation of climate change and socio-economic development

In India, there is growing preference among B2B customers for renewable energy with parity in cost and flexibility. Increased share of RE is pushing greater intra-day variations for base load coal, demanding more flexibility from RE generators. Also it is known that India has limited flexible generation compared to other countries. In addition, 40 GW of generation capacity based on coal in India is generating power at a cost more than Rs.4.20/kWh and RE Storage hybrid can potentially compete with such capacity. Also there are pools of value that Integrated Storage projects can tap into.

- Pools of Value Creation**

Generation: RE Smoothing, RE Firming, Curtailment Avoidance, RET/RTC, RE Arbitrage.

Transmission and Distribution: Frequency Regulation, Voltage Regulation, T&D Investment Deferral, Wholesale Arbitrage.

End Consumer: End-consumer Power Quality, Reliability (e.g., Backup, UPS), Increase of Self-consumption (e.g., Residential Solar + Storage).

4.5.1 - Alternative Integrated Renewable Energy Storage Projects

In keeping with the above opportunities to tap into value pools in power sector in India, Greenko has planned for Integrated Renewable Energy Storage projects.

Solution	Delivery hours	Fulfilment
1 RE-PHES	• 18 hours from 6 am - midnight	• 85% for 9 months • 75% in June, July, Sept
2 Solar + Wind + battery	• 12 hours from 9 am – 9 pm	• 85% for 10 months • 80% for June/ Sept
3 Solar + Wind-Hydro + Battery	3A 24 hours	• 85% for all 12 months
	3B 18 hours from 6 am - midnight	• 85% for all 12 months

One of the Integrated Renewable Energy Storage Project (IRESP) that Greenko is planning has the following characteristics:

- Solar: 1400 MW
- Wind: 500 MW
- Pump Storage: 400 MW
- Demand met: 500 MW
- Flexible Power
- RTC Power Capacity 500 MW
- Annual fulfilment of 80-85%

Another IRESP that Greenko is planning is of 1000 MW of RTC capacity and the details are:

- Solar: 1400 MW
- Wind: 1000 MW
- PHES: 600 MW
- Demand met:
- 750 MW
- 18 hours/day (0600–0000)
- Annual fulfilment of 80%

Besides IRESP, Greenko would consider harnessing opportunities of storage and other value pools in transmission and distribution. While there are many opportunities at consumer end too, presently Greenko is evaluating opportunities in electrification of transportation sector.

Following its vision, Greenko would advocate and lead the energy sector business transformation driven by decarbonisation, digitalisation and decentralisation. However, despite its best efforts, the transformation of the energy ecosystem in India may not proceed as desired or anticipated. Accordingly, Greenko would always review its strategic road map and be agile to adapt to unanticipated developments.









5

TRACKING VALUE
CREATION

5 TRACKING VALUE CREATION

As outlined in the earlier section, Greenko's strategic focus areas and approaches are designed to

- (i) Mitigate risks and harness opportunities presented by evolving external context in the medium and long term and
- (ii) Reinforce strengths and overcome weaknesses in our abilities to generate and sustain value.

Greenko monitors the deployment and effectiveness of actions in strategic focus areas and calibrates its focus and approach on a periodic basis. The KPI's that are tracked and reported in this section inform

- (i) actions taken to deploy strategy and their effectiveness
- (ii) reinforcement of value creation abilities.



5.1 FINANCIAL CAPITAL

Strategic focus area

- * Debt Capacity
- * Access to capital
- * Organic and inorganic growth
- * Revenue Growth (to be amongst top 3 power utilities in India)

Commitment to integrity and transparency is the corner stone of the continuing trust enjoyed by Greenko. In the pursuit of its vision and mission, Greenko will have to tap diverse sources of capital and pursue both organic and inorganic growth to continue to be amongst the top 3 power utilities in India.

Greenko has performed well on all these fronts and these would be crucial in helping Greenko progress towards its ambitious goal of reaching 10GW of installed generation capacity, thereby positioning itself to offer sustained attractive long-term returns to shareholders and to other stakeholders.

As would be evident from the performance figures given below, Greenko has maintained a good credit rating thereby remaining attractive to potential investors. It has been able to tap diverse sources of funds and has positioned itself in the top three of the renewable energy generators in India.

Greenko has a well-diversified source of revenue – diversified renewable generation technologies and diversified PPA structures, including (i) Feed-in tariffs, (ii) APPC Tariffs and (iii) Third party direct sales. The different generation technologies give

peak generation in different seasons across the year. The diversity of PPAs and the types of customers serves to reduce the regulatory and payment risks and ensure a continuous cash flow for the operational projects.

Further, due to the different capital avenues that Greenko accesses, it is able to raise finance at competitive terms.

Asia's Largest Green Bond Offer

Further to issuance of 500 million USD worth Green Bonds in August 2016, Greenko raised \$1 billion in an overseas debt sale in July 2017, making it Asia's largest green bond offer to date — and the world's largest high-yield corporate issue by a closely held company.

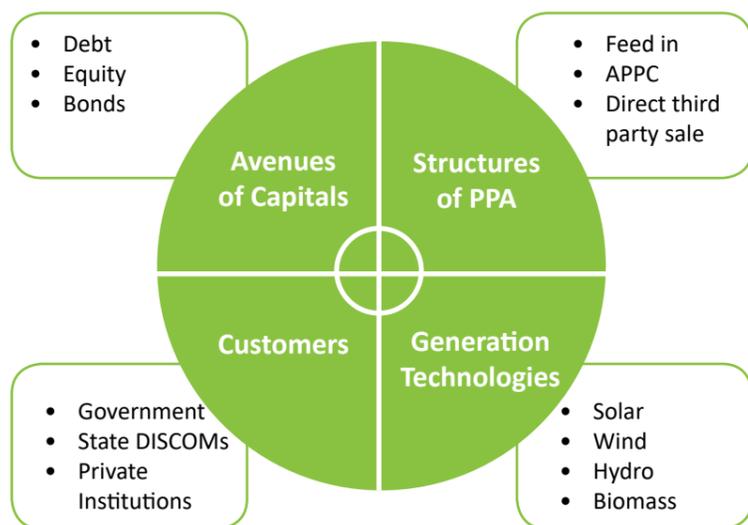
Greenko bonds were oversubscribed one-and-a-half times. Goldman Sachs, Blackrock, Fidelity, and Manulife Insurance subscribed to the company's this debt paper. Both US and Asian investors subscribed the papers, with each category of investors buying 40% each of the issue, while European funds bought the rest. It is interesting that quarter of the book was subscribed by first-time investors.

The bonds have been priced at 5.1% with five and seven-year maturities. Securities worth \$650 million will mature in seven years while the rest of the liability must be retired in five years.

Greenko, rated two notches lower than the investment grade, has become the first private company globally to offer the largest sum via corporate bond-sale in the high-yield market. Moody's and Fitand Fitch Ratings graded the bonds (P)Ba2 and BB-(EXP).

5.1.1 - Debt Capacity and Access to Capital

Greenko harnesses all forms of capital and has been an attractive destination for “responsible” and “patient” capital. Greenko and the instruments issued by Greenko are highly rated.

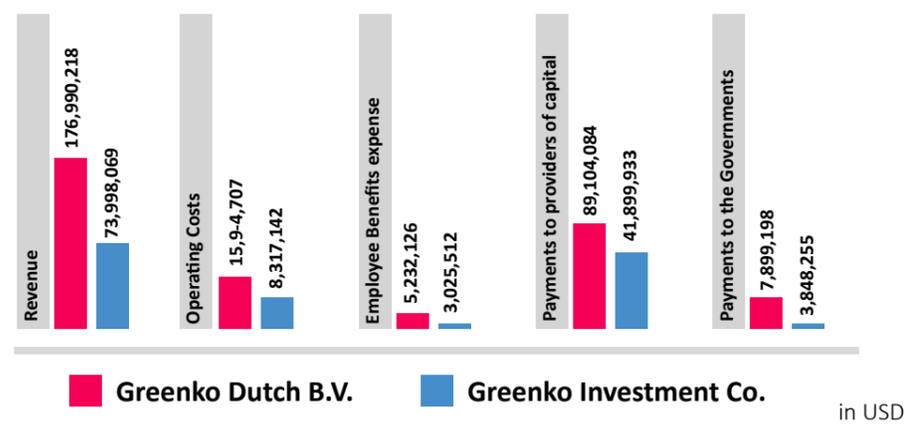


Greenko's Long-Term Foreign-Currency Issuer Default Rating (IDR) at 'B+' (Fitch, 2017) and Both the Indian debt instruments are rated A+ (CARE, 2018)

5.1.2 - Growth

Greenko pursues both organic and inorganic growth opportunity in sync with its transformational journey to Greenko 3.0 and 4.0. Further, it wants to spread its growth amongst a portfolio of technologies and business models. Greenko strives to be amongst the top 3 clean energy utilities in terms of revenue and its growth.

The group has significantly grown and generated revenue of USD 190.32 Million in FY18 in comparison to the USD 157.98 Million revenue generated during FY17, amounting to growth by 20.47%.



5.2 OPERATIONAL CAPITAL

Strategic focus area



- * Excellence in management of Projects and assets
- * Technology Capabilities
- * Energy storage value pools

As the renewable energy is growing in the country's energy portfolio, the grid, consumer and generator have to address qualitatively different challenges. At Greenko we have been preparing ourselves to harness the diverse value pools that are available in Indian energy systems. Some of these may involve a marginal improvement and some others- a large project. Over and above this, Greenko continues to be agile and ready to adopt the technology as per the demands of the business. This has implication for our technology, R&D, HR and Operations.

5.2.1 - Excellence in management of Projects and assets

The electricity system is becoming much more dynamic: decarbonised, decentralised and digitalised. In achieving the coveted national and international goal of decarbonisation of the economy, renewables are already the fastest-growing technology. Digitalisation further offers an opportunity for making the renewable power generation flexible. Greenko operates its business under this evolving context. Operating efficiencies and effective management of operational assets are therefore crucial to delivering desired value to all stakeholders. As is evident from the operational performance delivered during the reporting period Greenko has been able to well leverage its operational assets. It has been able to achieve 84.75% of its targeted generation for the reporting period. Healthy PLF was maintained in each of the renewable energy generation technologies viz. Wind, Hydro and Solar. The total downtime loss was restricted to 1.09% and all operational losses were limited to 2.95% of total generation.

The average machine availability across generating technologies was at a healthy 98.37% during the reporting period. A total of 181 continual improvement initiatives undertaken during the reporting period ensured that the generation assets of Greenko are leveraged effectively for delivering improved performance.



Solar Project Execution



Wind Project Execution

Strong execution track record

Greenko has a demonstrated track record of identifying, executing and developing projects, having growth in operational capacity from 491.6 MW in 2014 to 3.2 GW in 2018 through internal development and acquisitions of operational, under construction and active development projects. In FY17, Greenko added 706 MW of operational capacity, almost doubling the installed capacity base. Greenko also has 12 GW projects in pipeline.

Projects under Clean Development Mechanism

Greenko has till date registered 22 Clean Development Mechanism (CDM) projects with UNFCCC. These include 5 biomass, 14 hydro and 3 wind power projects, generating a total of 15,90,560 (tCo2) Certified Emission Reductions as per PDD(Project design document). Also 1 Biomass with Gold standard & 1 hydro plant with VCS registry, we have estimated our CO2 emissions from our operations following the standard of Greenhouse Gas Protocol (GHG Protocol) and using as a reference the emission factors provided by the IPCC. This is fundamental step in ensuring that environmentally responsible companies effectively contributing to the process of reduction of greenhouse gases. Registration of 4 wind 3 solar Projects (includes 14 plants & 3 clusters) i.e., 1,014.5MW operating Capacity will be registered with VCS Registry during the next year.



Taking pledge during Earth day Celebrations

Operational Performance

SBU Hydro	SBU Wind	SBU Solar	TOTAL
1. Generation Achieved vs Target			in MU
1303/1571	2172/2671	1766/1941	5241/6184
2. Plant load factor			in %
39.00	22.05	16.57	18.60
3. Plant availability factor			in %
97.00	98.00	99.97	98.49
4. Number of continual improvements			nos
113	58	10	181
5. Machine Availability			in %
99.00	96.53	99.58	98.37
6. Auxiliary Consumption			in %
0.48	0.63	0.63	-
7. Grid Availability			in %
99.00	82.73	98.81	93.51
8. Downtime Loss			in MU
17.00	29.21	11.00	57.29
9. All Operational Losses			in MU
43.00	65.88	46.00	154.88

Projects Performance

1. Capacity added	in MW
706	
2. On time completion of projects	in %
95%	
3. Time and Cost over run in projects	in %
10% budgeted amount depending on site conditions	

5.2.2 - Technology capabilities

Greenko, over the last many years, has deployed systems and honed skills to operate the units efficiently. In the implementation of projects, besides the technological capabilities, our partnerships with local communities and the institutions are leveraged to achieve timely completion of projects with no cost overruns.

Technology partnerships

Greenko purchases equipment from reputed turbine suppliers such as Alstom, BFL, GE Energy and Gamesa. Some of these turbines have already had several years of successful operational history. Contracts with suppliers in relation to our wind energy projects typically include comprehensive O&M services for a period of five to seven years. Such agreements generally provide for (i) a warranty in respect of the turbines for a minimum period of one to two years from the earlier of the date of commissioning or the date of supply, (ii) a power curve guarantee which assures optimum operational performance of the turbines a guaranteed availability during the wind season with liquidated damages. Greenko uses technology suitable to the geographical conditions and hence allowing higher availability and PLF.



GEPS: Greenko Energy Project Systems

GEPS is an in-house built state of the art project monitoring system tailored for the needs of all the functions related to project execution namely project management, QA/QC, engineering, logistics, material management, & stores. GEPS is the means of communication for drawings which can be downloaded/viewed from anywhere and any source (Tab/System) thus eliminating the need for email-based file transfer. GEPS is the first-hand information to the management, it helps to identify the criticalities of the project execution in the stipulated time line. The system helps the company to identify the severity of the critical activities by representing each activity in different color codes (5 different colors) w.r.t to a predefined program where each color represents the stage of completion of the activity against its stipulated timeline.

GEPS contains Business Intelligence System which is an ERP which can be accessed by the management which facilitates to monitor the micro level progress with highlighted criticalities based on the project timeline. Another function GEPS provides in Document Management System (DMS). Lower level engineering person will upload the drawings with latest revisions and tags respective persons during uploading makes them notified through mail. This system helps mainly in reducing the need for email-based communication thus avoiding miscommunications for site and HO teams.

5.2.3 - Energy Storage Value Pools

The variable, intermittent power output from a renewable power generation plants is smoothed using energy storage systems that control the ramp rate to eliminate rapid voltage and power swings on the grid.

5.3 INTELLECTUAL CAPITAL

Strategic focus area



- * Integrated Management Systems and Continual improvement
- * Innovation for differentiation
- * Technology Adoption

To become an utility scale, flexible, round-the-clock power generator with customer centricity, it is imperative that the company focuses on Innovation for differentiating itself with competition, while continuing with continuous improvement in every sphere; adopting management systems; and extending standard operating practices to all activities.

5.3.1 - Integrated Management Systems and Continual improvement

Innovation at Greenko is continuous and targeted to adopt appropriate technologies. It is also about system integration and geography specific customization involving soft and hard approaches. Accordingly, innovation at Greenko is cross functional involves systems and processes and standard operating practices.

Continuous improvement and innovation is an essential element of Greenko’s ability to adopt new technologies, adapt technologies to new geographies and putting together different technology components for a solution. Accordingly, intellectual capital constitutes the corner stone of Greenko’s transformational journey to GKO 3.0 and 4.0.

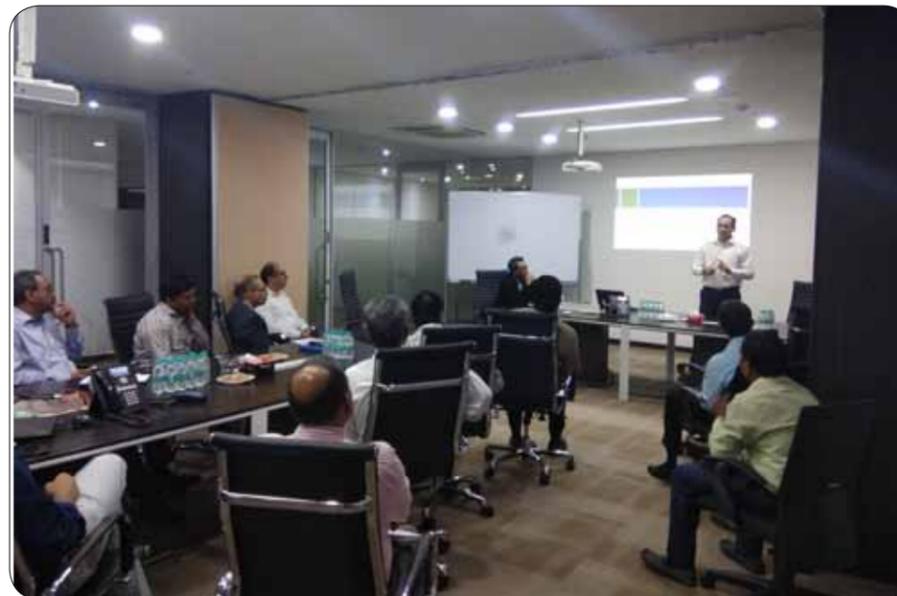
Greenko has deployed management systems across various facilities to secure robust predictable performance. Significant progress has been made in the reporting period to increase the coverage of sites under various management systems. 15 number of sites have witnessed deployment of management systems in the reporting period. With this, 70 % of Greenko’s sites are now covered under management

systems and 40% of sites are IMS certified. To continually secure planned performance from the already deployed management systems, 30 sites has undergone a successful management system audit during the reporting period.

Greenko has also adopted Environment and Social Management System (ESMS), based on performance standards of International Finance Corporation (IFC) across 40% of sites. Adherence to ESMS at sites is audited by a third party and the outcome is reported to and discussed in the Board, once in a year.

All processes that are critical for business operations are codified under standard operating practices.

KPI	Value
Integrated management system certified sites	40%
Real time monitoring of assets	100%
Number of rewards and recognition programs	10
Number of awards received	6
Number of Continual Improvements achieved	181
Number of IMS audits carried out	60



Integrated Reporting - Stakeholder Engagement

Continual Improvements

Budhil

Upgradation of Budhil SCADA

Bhilangana

Installed Trash Rack Cleaning Machine (TRCM) for removal of debris at intake during peak season.

Upper Joiner & Sumez

Usage of Dredging pumps in Cooling water sumps to remove the deposited silt without taking shutdown of the units.

North HEPs

Erection of Flushing valves at forebay trash rack to flush the deposited muck in forebay.

CC cameras installed at Plants to monitor from Powerhouse

Dikchu

Installation of Solar Plant for Auxiliary consumption at Dikchu DAM.

Installation of Flowmeters on U/s of Dikchu river (Some meters away from Dam) to forecast the flow.

North HEPs

Adopting the technology of discharge measurement at penstock & tailrace.

Data Synthesis / Analytics

Upper Joiner

Adopting IoT technology for integrating plant level SCADA to Central SCADA at H.O even the network connectivity is very low (Upper Joiner).

SCADA

Getting data of critical parameters of Hydro plants – AMR, RITHWIK, Perla, Budhil, Sumez, Dikchu and Upper Joiner at H.O.

Asset Health

All HEPs

Usage of Temperature Gun (Non-contact Infrared Thermometer) to monitor the temperatures of rotating Machine parts.

Budhil

3D Scanning of the Turbine runner for maintaining the record of runner profile for future purposes.

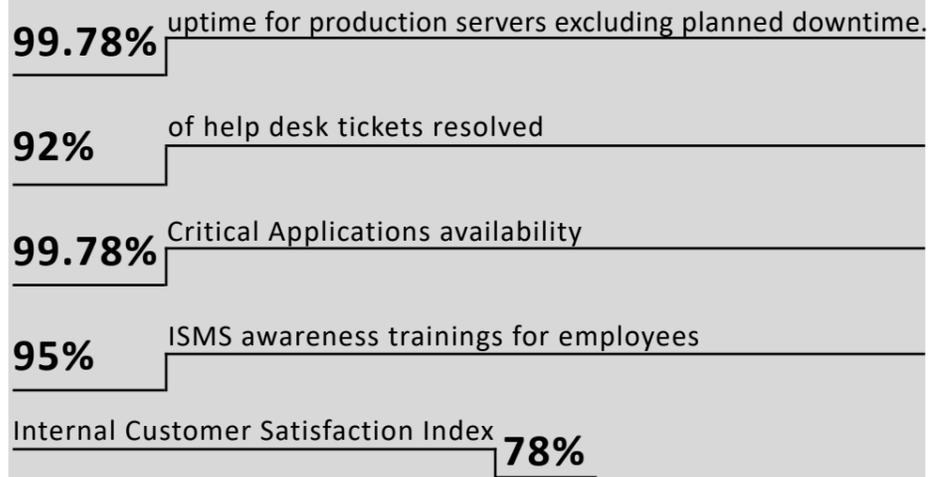
North HEPs

Measuring Silt PPM by using sediment jars during the rainy season which helps in taking decisions to Run / Shutdown plant during Rainy / Flood season.

5.3.2 - Innovation for differentiation

In the face of basic infirmity in the underlying core generation technologies, integrating renewable energy sources with appropriate storages to provide firm power constituted our innovation pursuit for differentiation and competitive advantage. Such innovation included continuous improvements, marginal innovations, adaption of technologies and planning new and innovative projects. While Greenko makes big moves to address challenges of future energy scenarios, it recognises the significance and encourages the innovation culture. Greenko rewards innovation at all levels through variety of innovation awards.

ICT Effectiveness



Greenko Employees attended Wind Power Module Training at Gamesa Office, Spain

Projects to improve ICT adoption

HANA Project: Upgraded current SAP ECC system Software and Hardware landscape with latest technologies, ie. to SAP S/4 HANA 1610 to support future business requirements.

GST Project: EHP 7 Up-gradation and enable GST functionality in all ERP packages. GST implementation with customized reports for Indirect taxation team

SF Project: Completed the SuccessFactors implementation a new HRIS System. Implement following SAP SuccessFactors modules for HCM to empower employees (Manager and Above – 430 Nos) and integrate it with existing HR module.

SF Modules:

- Employee Central
- Learning Management Systems
- Recruitment Management & On Boarding
- Compensation Management
- Performance & Goal Management
- Succession Planning

SD Project Implement SAP SD (Sales and Distribution) module and ECRM (Energy Customer Relationship Management) for Commercial Department, to start with Wind plants. Provided Customer Portal for Commercial department. Captured the all sales processes with multiple output formats.

PM Project: Implement SAP PM module for 6 Hydro plants (AMR, Rithwik, etc.). Enhanced Plant Maintenance module for the following: Equipment specifications, BOM, Materials & Man Power planning for Maintenance activities

SunEdison Project: Evaluated the SunEdison SAP System configuration and extracted the data required for migrating into Greenko landscape and rolled out the 26 operational plants with FICO & MM Modules and migrated the extracted historical data into Quality system and provided the same for Business validation.

Integrated Electronic Surveillance

The Integrated electronic surveillance at Greenko Group functions on multiple window design principle providing live monitoring & recording reviews on 24/7 basis to central Security Control Room located at HO-Hyd and site based security control room. Entire site activities are continuously monitored by both the monitoring stations to provide instant response.



Drone Training at Ghani Solar Park



5.3.3 - Technology Adoption

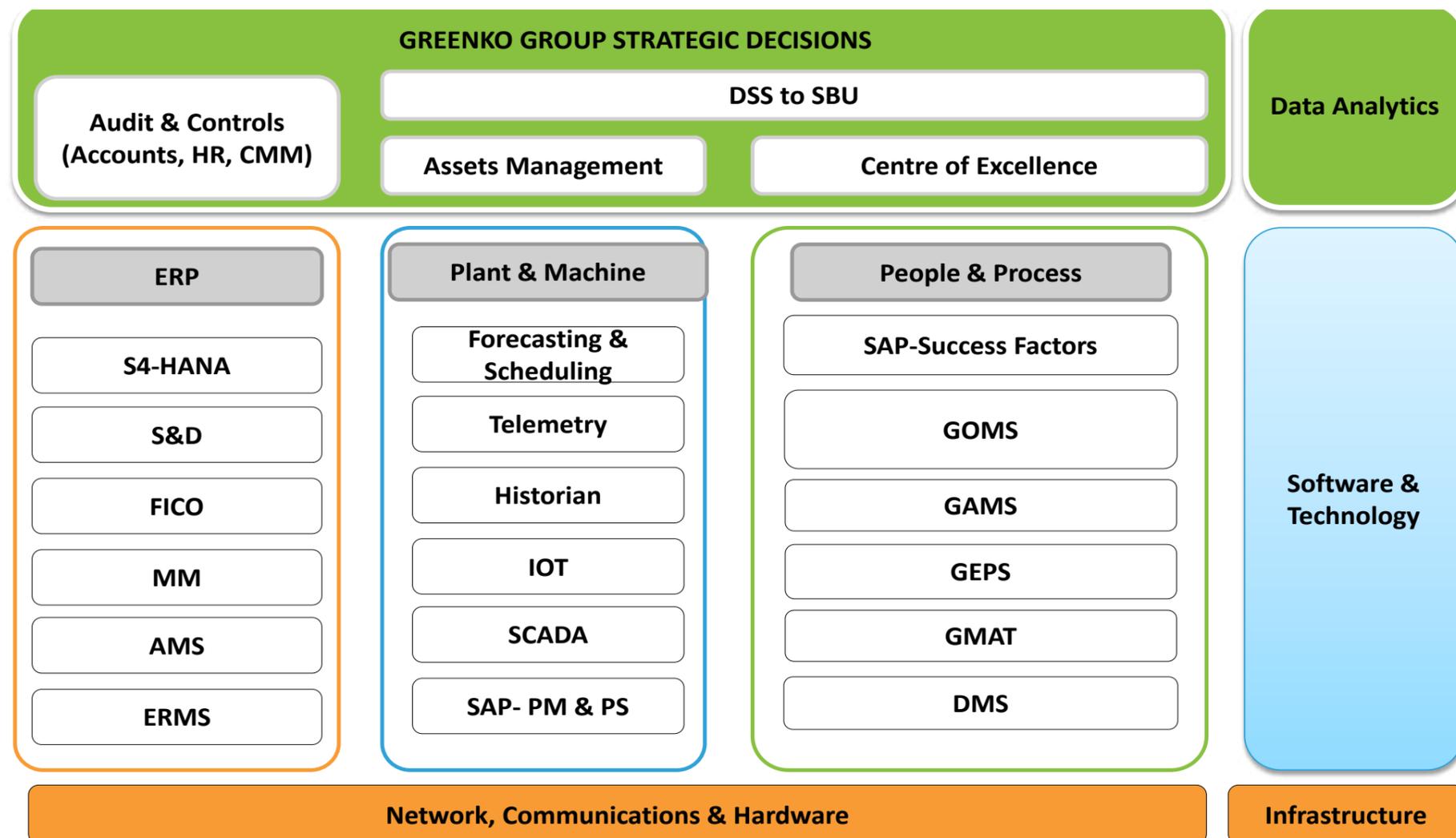
Greenko uses the latest tools, technologies and instrumentation that allow project management, plant operation and plant maintenance effectively. Greenko develop its projects using state of the art technologies. Greenko plants are automated and use SCADA and other systems for remote monitoring. Greenko’s strategy is to enable capacity optimization out of refined, validated data, robust project design, selection of technology and economic return hurdles.

Greenko is adopting the following technologies for effective project management and operational management.

Internet of Things

1. IOT based smart data logging and visualization system
2. IOT based industry equipment control with predictive maintenance
3. Smart Security Solutions based on Internet of things(IOT)
4. Smart Configurable WIFI Enabled Switch
5. Talking Plant-Smart Plant Monitoring System
6. Cloud Based Weather Prediction & Notification System
7. Temperature and Humidity Remote Monitoring
8. Smart Vehicle Tracking System with Notification Service
9. SCADA system with power quality monitoring in Smart Grid model
10. IOT Enabled SCADA system for Electric Substations
11. Predictive Analytics for Turbine Lube Oil Management
12. Image Classification using Machine Learning and Low Power Hardware
13. Smart Cap: Vision for the visually impaired using Deep Learning
14. Equipment Monitoring and Control using Wireless Sensor Networks
15. Integrating Wireless Sensor Networks into IOT for security

Greenko Technology platform



ERP - Enterprise Resource Planning
 ERMS-Enterprise Risk Management System
 S&D- Sales and Distribution
 HANA is an in-memory, column-oriented, relational database management system
 FICO - Financial Accounting and Controlling
 MM - Material Management
 PM - Plant Maintenance
 PS - Project Systems
 IOT – Internet of Things
 SCADA - Supervisory Control And Data Acquisition

PLC - Programmable Logic Controller
 GAMS – Greenko Asset Management System
 GEPS – Greenko Energy Projects System
 GMAT – Greenko Meeting & Action Tracker
 DMS – Document Management System

Business Systems

Enterprise Information Management System	<p>SAP S4/HANA</p> <ul style="list-style-type: none"> Material Management Finance & Controlling Plant Maintenance HCM & Payroll S & D <p>HANA Migration</p>	<p>SAP Success Factors</p> <ul style="list-style-type: none"> Employee Central Recruitment Learning Management Performance & Goal Management Succession Planning & Career Development Compensation Management
	GLMS (Greenko Leave Management System)	
Project Management	<p>GEPS (Greenko Energy Projects System)</p> <ul style="list-style-type: none"> Project WBS planning, activity scheduling, resource allocation & track issues. Project progress updates by field execution & quality team using mobile apps. Logistics planning and track equipment delivery to project sites. Business Analytics using Sisense: Real-Time project progress insights to the project stakeholders for decision support 	
Centralized Monitoring & Control Systems (SCADA)	<p>GE Proficy : Cimplicity 9, Historian 6.1</p> <ul style="list-style-type: none"> Integration and visibility of all plants data at GAMS command center. Real-time monitoring of plant parameters by O&M. Reports and Analytics for performance improvement. <p>GOMS- field services operations and maintenance system</p>	
Forecast & Scheduling	<p>Microsoft SQL Server Integration & Reporting Services</p> <p>Provide Asset operational reports on continuous basis for energy forecasting</p>	
Resource Assessment Applications	<p>Meteodyn, Meteopole, OpenWind, Wind Farmer, WASP</p> <ul style="list-style-type: none"> Wind Resource assessment software(s) for validating the wind data, Power Curve, identify & selecting wind farms, optimising the implementation strategy, validating OEM data trends and wind forecasting. <p>PVSyst</p> <ul style="list-style-type: none"> Irradiance study, sizing, simulation and data analysis of Solar PV projects 	
Collaboration Applications	<p>GMAT (Greenko Meeting & Action Tracker)</p> <ul style="list-style-type: none"> Plan and conduct business meetings, Share meeting minutes, track action items unto closure. <p>Greenko Intranet</p> <ul style="list-style-type: none"> Social platform to engage employee affiliation to and within the Company, Training Programs, Induction Programs, Shared Services. 	
Document Management	<ul style="list-style-type: none"> Document control mechanism for Plant engineering, design documents, data storage and department procedures across plants and offices. 	
ICT Support Apps	<p>Helpdesk</p> <ul style="list-style-type: none"> ITIL based helpdesk for incident, change & asset management Network monitoring, applications availability & information security <p>Avaya IP Office</p> <ul style="list-style-type: none"> Internal voice communication and conference bridges across stakeholders. 	
Surveillance	<p>Mind Tree Gladius</p> <ul style="list-style-type: none"> Real time asset monitoring through networked cameras across the group Assessing, Analysing and storing surveillance data for Security Services use. 	



Real time monitoring of Greenko Assets by Centralized SCADA System



Real time monitoring of Greenko Projects by Centralized Project Management System

5.4 HUMAN CAPITAL

Strategic focus area



- * Nurture Talent
- * Ensure Safe, Healthy and Lively workspace

People are at the center of Greenko’s pursuits. Nurturing the talent and caring for people is a principled commitment at Greenko- it involves attracting, training, rewarding, recognising and growing. Fair, Safe, Healthy and Lively work place is furthering such commitment. As the sector is likely to face significant disruptions and challenges, it is imperative that our people are motivated, committed, agile and innovative to enable the company to navigate through turbulent trends and harness opportunities.

5.4.1 - Nurture and Realise Human Potential

Greenko lays great emphasis on its Human Capital. Greenko’s engagement in this sphere is structured to impact the seven major dimensions of human capital viz. talent acquisition and retention, employee engagement, health and safety, employee welfare, diversity, succession planning, diversity and human rights.

Human capital management at Greenko is geared to enable employees to realize their full human potential while contributing to the company to generate value. Human capital and concomitant intellectual and manufactured capital are critical to the sustainability of Greenko’s business.

During the reporting period, Greenko has successfully carried forward its program of talent acquisition and development. 204 persons have undergone training under its flagship ELTP program for young recruits.

Greenko has continued to support, develop and nurture trainees and employees for career progression along its two established tracks (Normal track and Fast track) by maintaining close engagement with them and mapping their skills and competency. Its endeavours to multiskill its workforce across various lines of work so as to improve the efficacy of its people has continued during the reporting period. The training program saw strengthening during the reporting period registering an increase in 22.25% in the average training hours spent per employee with total training hours deputed seeing a 31% increase as compared to previous year. Developmental interventions across all employee segments were increased (Executives: 18.58%, Junior Management: 13.60%, Middle Management: 11.53% and Senior Management: 90.19%) during the reporting period vis-à-vis previous year. Rewards and recognition of employees at Greenko have seen 45% employees move from current level to next level.



KPI	2016-17	2017-18
Headcount Growth	1,924	2,249
Female employees	79	90
Total Training hours	42025	55372
Training hours per employee	21	26
Attrition Percentage	13	11
HRMS Implementation	-	Implemented Success Factors
SAP Payroll Complaints resolved	60 Issues	17 Issues
Local Talent Development	30 (Suryamitra Program)	357 (Solar Skill Development Program, Kurnool)
Number of Trainees hired	204	80

Building Leadership

To meet the growing business demands ,it was important to align the senior management team to the latest practices being followed in the industry. 33 members participated in the ISB - Greenko Management Program conducted at Indian School of Business Hyderabad ,a premier management institute. This program was specially designed for the Greenko personnel ,keeping in mind the expansion of the company so that the leadership could seamlessly adapt to the competitive business scenario.

This program spanned over a 3 month period and involved experts from various disciplines taking classes. The senior managers garnered rich and powerful experience by interacting with some of the World’s finest faculty enabling them to further hone their leadership skills.



Leadership Training Program at ISB, Hyderabad

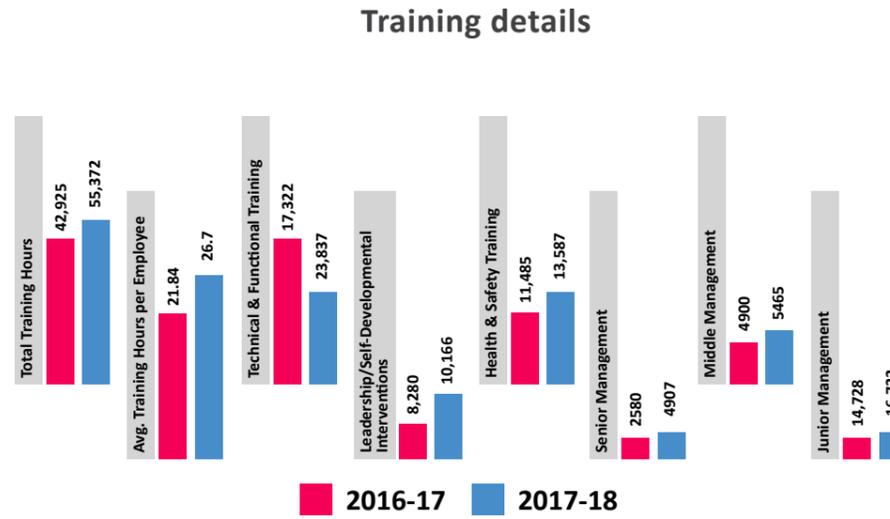
Through the continuous effort of Greenko in effectively engaging and nurturing human capital, the attrition rate amongst employees reduced by 2% from the previous year. The attrition rate was maintained at a decent level of 11% in 2017-18.

Greenko believes in diversity. It does not discriminate amongst employees (potential and working) on the basis of gender, caste, religion etc. In the reporting period, Greenko has been able to maintain healthy diversity. During the reporting period, 4% of its employees were women.

Greenko has instituted a succession planning system wherein potential successor for earmarked roles are identified and groomed. During the reporting period, selected employees have undergone the required learning for the new roles in which they have been deployed.

Greenko has continued to operate its welfare programs for employees during the reporting period. These included free food and accommodation facility for employees working in projects and plants, support for the best quality school/college education/professional courses through tuition fee reimbursement (25% to 50%) for employees' children, providing medical insurance benefit for employees' family and dependent parents, personal accident insurance coverage for all the employees, providing subsidized lunch for employees working in all the offices, paid maternity leave and support through extraordinary leave, employee provident fund contribution, employee state insurance and gratuity as per the applicable provisions, providing fitness facilities: gymnasium, games and sports (cricket, shuttle & table tennis).

On human rights front Greenko continued to be vigilant and like in the previous year this year too there has not been any instance of human right violation.



HR Training on Personal Effectiveness

Diversity

Greenko is an equal opportunity employer and believes that women need special assistance and handholding to effectively participate in workforce and contribute. Accordingly, Greenko has many promotional schemes and programmes for facilitating women to continue in the work force.

Similarly, Greenko encourages and makes special efforts to recruit and retain, differently abled people.

The Women's day celebrations were held on 8th March at 36B office of Greenko. It was a fun filled evening with 85 women employees actively participating in the same.

As employment at Greenko is the first job for most girls, took the opportunity of educating them on how to present themselves professionally. This forum was also used to inform them to alert Senior Women officers/ HR if they are facing any inappropriate behaviour or do not feel that they are in a safe environment.

Mr. Kishore, Head HR also told them regarding their career growth opportunities & how appraisals are not dependent on only their line managers but also with whichever department they are working with. A whole 360 degrees evaluation approach is being adopted and hence they need not feel intimidated or scared to report any kind of wrong doing.

It was further been decided to have such activities every quarter that enhance their personal/ professional life.



Women's Day Celebrations

The First Quarterly meet of Women employees of Greenko was successfully conducted in 2018.

Health Talk workshop for women employees

An insightful talk by Chief Clinical Nutritionist Dr. Srilatha from Maxcure Hospitals was held.



Health Talk for Women Employees

KPI 2017-18

% of GETs amongst total recruitment	28
Overall Retention (%)	89
Demographic distribution by age	
• Below 30years:	31.03%
• 30yrs to 50yrs:	61.45%
• Above 50 years:	7.51%
% joined back after availing parental leave	100%
Number of employee grievances received and resolved	300
Number of employee engagements	10
Training (hrs) per capita per year:	26.7
Cross role deployment (person hours)	1440

Detailed Training material for Graduate Engineering Trainees was developed. Domain specific Hand books were prepared for Wind, Hydro and Solar divisions. This year 720 number of Hand books were issued to GETS for improving their skills.

5.4.2- Safe, Healthy and Lively Workspace

Greenko has a 'Zero harm to life' philosophy across its operations. The contract workers and employees of the suppliers in its site are also required to follow all safety practices during their presence on the sites. Each site has identified safety officers, first aid personnel and emergency response teams and maintains safety training records, as well as the incident dashboards which are reviewed regularly at the cluster level and by the corporate EHS team every month.

During the reporting period, number of incident-free hours was recorded at 24.32 Million man-hours as compared to 11.03 Million man-hours. The number of hours devoted to safety training of employees and contractor workers was increased by 18% over the previous year, while the number of hours devoted to safety training of contractor workers alone was increased by 71%. 116 EHS events were conducted at Greenko during the reporting period which is almost double that of the previous year. The outcome of these and other measures of safety have helped improve safety performance at Greenko during the reporting period. The number of First Aid cases came down from 213 in 2016-17 to 171 in 2017-18. Similarly Near Miss cases came down from 237 (in 2016-17) to 210 (in 2017-18) and a number of Unsafe Acts/Conditions came down significantly from 2,185 (in 2016-17) to 1,183 (in 2017-18). Overall the safety performance witnessed significant improvement during the reporting period.



On the job Safety Training

Safety Week Celebrations 2018

The National Safety week celebrated across the group. During the safety week celebrations the following programs were conducted.

1. Starting Ceremony of National safety week
2. Daily safety Pledge
3. Importance of PPE and awareness program on PPE
4. Housekeeping Importance and plant surface housekeeping by site staff
5. Discussion on EHS procedures and work permits
6. Mock drill on Electric Shock survival
7. Safety posters competition
8. safety speech competition
9. Safety Quiz competition
10. Prize distribution, closing ceremony and Sweets distribution



National Safety Day Celebrations



Health and Safety Training Certificates Distribution

Greenko undertakes many preventive measures to improve safety performance during the project execution and site operations. The scale and nature of such preventive measures are measured and monitored through proactive safety indicators. The progress during the proactive safety indicators during the reporting period over the previous reporting period, are in a table.

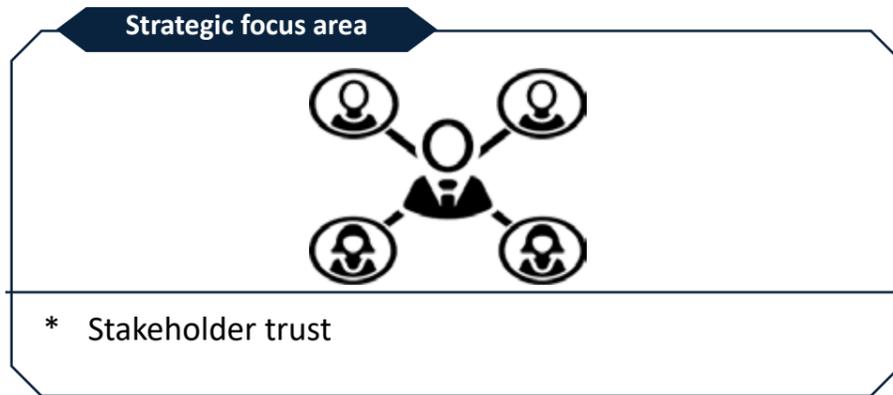
Proactive Indicators	2016-17	2017-18
Safety Training hours (for Greenko and contractor employees)	11,485	13,587
Tool Box Meetings	8,837	9,508
EHS Walkdown Inspections	489	528
EHS Events	80	116
EHS Committee meetings	120	291
Number of incident free man hours	11.03millions	24.32millions

Reactive Indicators:	2016-17	2017-18
First Aid Cases	213	171
Near Miss Cases	237	210
Unsafe Act / Unsafe Conditions	2,185	1,183
Fatalities	0	0
LTI Frequency Rate	0	0

Significant proportion of activities at sites are undertaken by contractors or suppliers. Hence it is crucial to inform the contractors and the suppliers about the unsafe acts and conditions and appropriate training. The safety related discipline and training requirements to employees of contractors are as rigorous as to Greenko employees.

Three female employees at Sneha Kinetic Hydro Project are from families that sold land to the project. They were given admin jobs during the project construction. On completion of the construction, these employees are re-skilled in laboratory and EHS roles and are retained.

5.5 SOCIAL AND RELATIONSHIP CAPITAL



Greenko’s business involves operations that are land, water and ecology intensive and is intertwined with many livelihoods. Greenko considers the nature of its operations, as an opportunity to touch many lives and contribute. Greenko’s partnership with communities enables us to deploy projects on time, manage assets efficiently and provides us with broader social license to operate.

In addition, Greenko values relationships and build partnerships with the suppliers, contractors, regulators and customers so that Greenko can effectively deliver affordable, reliable and clean power.

5.5.1 - Foster relationships and built on trust

Within Greenko, social capital takes the form of shared values, and trust that is essential for working cohesively and effectively with our partners over a long term. engagements with stakeholders help create a climate of consent and understanding, (social license to operate), create a stable society to work, operate and grow our business sustainably.



Environmental Awareness Competitions for School Children



Tree Plantation drive at Anantapur Cluster



RO Plant installed at East Kodipalli



Health Camp at Jogini HEP, Himachal Pradesh

Mutually Beneficial Long-Term Partnerships with Suppliers

Hydropower and Wind Energy Project Suppliers

Cost of turbine constitute significant proportion of hydropower and wind energy project costs. Turbine suppliers are limited and the demand for turbines outstrips the manufacturing capacity. Greenko turbine procurement strategy is to establish framework agreements and developing strong relationships with leading turbine suppliers to secure the turbine requirements. To date, the company has purchased hydro turbines for high-head hydropower projects from Alstom, hydro turbines for low head projects from BFL Turbines and wind turbines from GE Energy, Gamesa, ReGen Powertech and Suzlon.

Contracts with suppliers typically comprise a supply agreement and service agreement and each agreement includes a covenant on the part of the contractor to carry out the works and to remedy defects in conformity with the terms, conditions and provisions of such agreement. The engineering and construction companies with whom the contract to perform civil engineering, electrical work and other infrastructure construction for the projects. Greenko believes there are a sufficient number of capable engineering and construction companies available in the regions to meet the needs.

Solar Energy Project Suppliers

Operating equipment for solar energy projects primarily consists of solar panels, inverters, cables, solar mounting structures, trackers and the evacuation system. Greenko purchase major components such as solar panels and inverters directly from multiple manufacturers. There are several suppliers in the market and those suppliers are selected based on expected cost, reliability, warranty coverage, ease of installation and other ancillary costs. Greenko's primary solar panel suppliers are Trina Solar, Chint Solar and Risen. Greenko also source solar inverters from SMA Solar. Greenko typically enters into master contractual arrangements with major suppliers that define the general terms and conditions of purchases, including warranties, product specifications, indemnities, delivery and other customary terms. Greenko normally purchase solar panels and the balance of system components on an as-needed basis. In relation to solar energy projects, the contracts with suppliers typically comprise a supply agreement and service agreement. The contracts with suppliers include a warranty to repair, replace or refund defective solar

modules valid for 10 years and a power output warranty generally lasting 25 years. Greenko generally do not have any supplier arrangements that contain long-term pricing or volume commitments, although at times in the past, Greenko has made limited purchase commitments to ensure sufficient supply of components.

In relation to wind and solar energy projects, Greenko analyzes the wind data (for wind projects) and irradiation data (for solar projects) from each project site before determining the specifications of the equipment that is ordered from the vendors.

Transmission and Interconnection

Since the availability of transmission infrastructure and access to a power grid or network are critical to a project's feasibility, Greenko ascertains transmission capacity from public sources and owns proprietary data during the prospecting stage. If existing transmission infrastructure is available, Greenko attempt to secure access to it when selected potential site for development as part of prospecting activities. Greenko discusses availability with the relevant state utilities and file an application with the appropriate independent system operator or local electric utility to interconnect with the network. Power from wind and solar farms is typically evacuated to the relevant grids through high voltage 33/220 kV transmission lines from dedicated pooling stations which results in stable energy transmission and minimizes electricity grid stability issues.

KPI	Value
% of retained suppliers (beyond 3 yrs)	98.5
% Procurement Expenditure (Global)	35
% Procurement Expenditure (Local -India)	65
Number of co-creation projects with stakeholders	5
Supplier satisfaction Index	98%

Customer Focus

Customers of Greenko include, state owned and privately owned distribution companies and industrial and commercial bulk users of electricity. Greenko customers including distribution utilities, face many challenges due to inherent non-firm nature of renewable energy supplies. Greenko appreciates the challenges the customers face and work in cooperation with them to address and provide electricity as scheduled by forecasting the schedule to the extent feasible. The performance record in providing the power as per schedule is demonstrated by low penal charges that are levied on Greenko.

Greenko also supplies electricity to industrial and commercial bulk users and for this purpose uses the infrastructure owned and operated by various private or state owned transmission and distribution companies. These supplies also face challenges from the transmission and distribution utilities and challenges of frequent changes in regulator determined charges for wheeling, banking etc. Greenko understands and appreciates the nature and reason for such situation and work with the regulator and utilities to provide uninterrupted and reliable power supply to their industrial and commercial customers.

Greenko also sells power on energy exchanges and interacts with both the operating exchanges in India to make the trade more effective and rewarding to the involved parties.

KPI	Value
Customer Satisfaction Index (out of 5)	4.6

Partnering with Communities

Greenko's socially responsible initiatives amongst the neighbouring communities, during the reporting period, covered engagements in Healthcare, Education, Rural Development and Environment. During the current reporting period, the beneficiaries impacted by Greenko's initiatives increased significantly. 7,206 beneficiaries benefited from the free healthcare camps as against 854 in the previous year. With increased coverage in free eye camps, Greenko has been able to reach of 848 persons which is significantly higher than the 498 person beneficiaries of the previous year. Greenko constructed 9 Reverse Osmosis water treatment plants to make provision for drinking water – 500% increase from the initiative undertaken last year. To help education, Greenko provides infrastructure support to schools. This helped 2,011 beneficiaries as against 606 who benefitted in the previous year. Greenko built 6 open wells to help rural folks. Overall, a significant strengthening of efforts and impact of Greenko's social initiatives has been registered in the reporting period.

- 3 DST Eye camps conducted;
- 35 Villages covered;
- 1186 people utilised the eye screening and testing services;
- 551 people identified with refractive errors;
- 123 people identified for cataract surgery
- 107 people Cataract Extraction Surgery with IOL implantation;
- 9 people Pterygic Excision with Conjunctival Autograft Surgery
- 5 people Dacryocystorhinostomy (DCR) Surgery; and
- 2 people for Nd:YAG Laser Surgery

The above program received overwhelming response from surrounding villages and achieved a 100% success rate with no post-operative complications. These camps not only provided opportunity for specialized eye care services for the locals but also supported people with other needful surgeries in screened out patients with cataract and other refractive errors to eliminate avoidable blindness.

KPI **2017-18**

Number of Beneficiaries	310,522
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Eye Care Camps- Diagnostic Screening and Treatment

To address the problem of avoidable blindness, Greenko has organized a number of Diagnostic Screening and Treatment (DST) Eye Camps in remote areas of Himachal Pradesh-neighbourhood areas of Greenko's Hydel Plants that lack eye care facilities.

A seven-member professional team including eye specialists' have provided their services at these Camps. The medical assistance provided in the camps covered screening of the eyes and vision test. Further, the patients diagnosed for cataract and other eye surgeries were examined further for general health condition including Blood Sugar (Diabetes), Blood Pressure (Hypertension) etc. The surgery camps were conducted at Mela Mal Sood Rotary Eye Hospital, Palampur, Kangra District, Himachal Pradesh. Patients requiring minor treatment and vision problems were given specific medicines for ophthalmic diseases and spectacle for improving the vision.

The Program was initiated in 2016-2017 and till 31st March 2018, the following milestones have been achieved:



Health Care activities by Greenko

Providing Safe Drinking Water through RO Plants

Contamination of ground water from Fluoride and Arsenic is a challenge in some regions of India and the Government has initiated many programs to tackle this. Greenko identified this problem during consultation with its neighbourhood communities in Anantapur and Kurnool districts, Andhra Pradesh. The company has initiated a Program for providing safe drinking water through setting up of Village Level Reverse Osmosis (RO) Plants.

The objective of this intervention extended beyond provision of safe drinking water, to improve the health conditions of the local community and protect them from water borne diseases. The initiative was implemented in some of the neighbourhood villages at Greenko's Wind and Solar Plants in association with the local Panchayath bodies.

The necessary material and equipment for the RO Plants is sourced from reputed agencies who are also responsible for installation and annual maintenance of the Plants. The RO plants are operated by a trained local operator from respective villages who is responsible for day to day maintenance of the Plant, distribution of water among the households, record keeping, conducting awareness campaign and address any grievances. The Program was initiated in 2016-2017 and till the end of the reporting period (31st March 2018) the following milestones have been achieved:

- 9 RO Plants installed and in Operation;
- 5 RO plants installation in Progress;
- 12 Villages covered;
- 5,000 people directly benefited;
- 650,800 litres of safe drinking water supplied for reporting period



RO Plant Inauguration

Impact of project acknowledged by the Stakeholders

My name is Chinnama. I am a resident of P. Yaleru village and after using the safe drinking water supplied from the RO Plants the health condition of my family members improved. Previously we use to suffer from ortho related problems which are subsided, on behalf of my village, I convey my thanks to Greenko for making us healthy.

My name is Chandra Naik from Kaparlapalli Village. I convey my gratitude to Greenko for providing safe drinking water by setting up of RO Plant at our village. Previously we were suffering from Fluoride related problems and we had a great trouble to get water from 15 km away from my village. Now, people from my village and 4 neighbouring villages are taking water from this plant.

SKILL DEVELOPMENT CENTRE

Greenko has built a Skill Development Centre at our Ghani cluster in Kurnool with a vision to enhance the skills of local youth for employability and introduced Solar Skill Development Certification Program.

280 ITI students from the local communities were trained and certified under this program. Greenko has provided employment to over 100 trainees.



Skill Development Training Center



Skill Development Training

Women on Wheels

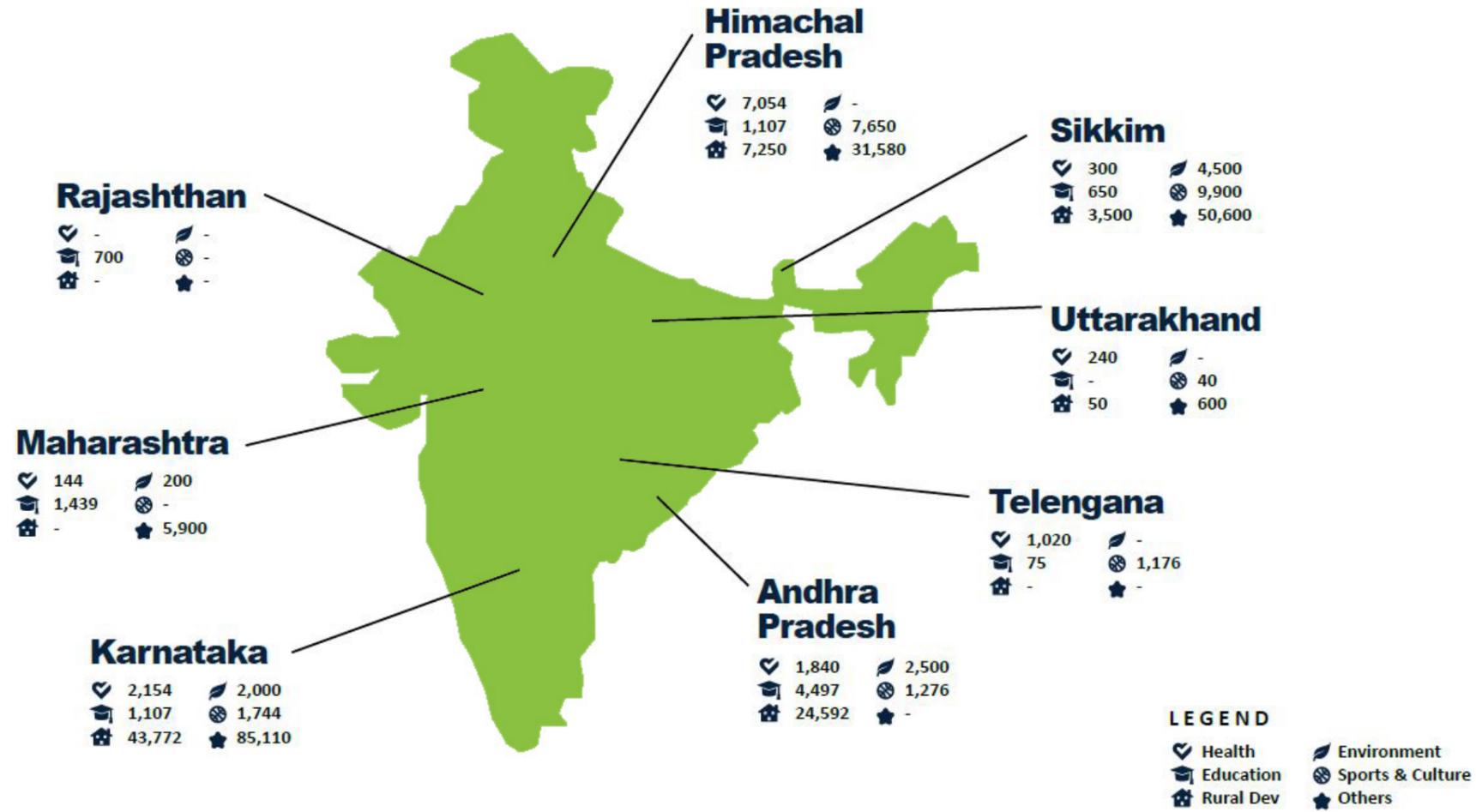
More than 600 women from different walks of life participated in Women on Wheels (WOW), the signature cycle ride of Hyderabad Bicycling Club organised as part of International Women's Day celebrations at Hyderabad on 10th March 2018. Greenko was the title sponsor & we had close to 50 women employees participating in the event.

The exclusive event for women at National Academy of Construction (NAC) campus had principal secretary-IT and Industries, Jayesh Ranjan flagging off the ride in the presence of HBC chairman, D V Manohar and others. Women on Wheels had two categories of rides- 10 kms and 5 kms, both within the Hitex Complex to ensure safe cycling for the women cyclists and intends to encourage more women to take to cycling and make cycling a part of their daily routine to lead a healthy lifestyle.



Greenko Women Employees participated in Women On Wheels Event

5.5.2 - State wise CSR Impact Mapping



Focus Wise:

₹ Total spendings 👤 Number of beneficiaries

♥ Health	🎓 Education	🏠 Rural Dev	🌿 Environment	🏀 Sports & Culture	★ Others
₹ 19,25,828	₹ 80,82,980	₹ 1,10,43,986	₹ 22,82,588	₹ 10,55,024	₹ 16,51,190
👤 6,892	👤 11,082	👤 79,074	👤 9,200	👤 25,549	👤 1,73,790

5.6 NATURAL CAPITAL

Strategic focus area



- * Mitigating Environmental Impacts through life cycle
- * Restoring Nature

Greenko's Objective: is to preserve and enhance Nature.

Greenko works with the stakeholders to lead the way in resource utilization by minimizing the environmental footprints and protecting the environment wherever Greenko operates.

Goals

- Proactively preserve land and water resources in the regions of operations.
- Identify and manage life cycle impacts of projects

Key Performance Indicators

- Wasters / Effluents generated
- Direct & Indirect GHG emissions avoided
- Water used
- Water resources recharged and conserved
- Air Pollution avoided
- Contribution to Biodiversity conservation
- Number of plants for which life cycle assessment is carried out
- Number of Life cycle impacted materials and equipment identified

5.6.1 - Mitigating Environmental Impacts

Greenko's business is inherently contributes to mitigation of harm to environment. However, Greenko is committed not to harm nature in all its operations and value chain, to the extent practicable. In addition, Greenko is proactively contributing to conservation of ecosystem and managing impacts across life cycle.

The core business operation of Greenko consists of the generation of renewable energy that helps conserving the limited natural resources and consequent emissions, discharges and disposal; and help mitigate the impacts of climate change by displacing fossil fuel generated electricity in the Indian national grid.

On its part, Greenko incorporates means and mechanisms to conserve natural resources in all the lifecycle stages of its projects – from conceptualisation to operations and decommissioning. It adheres to performance standards of IFC to preserve and conserve environment and resources.

KPI	2017-18
Direct & Indirect GHG emissions avoided	4,297,959 tCO2
Water used	133,468 kl

Conceptualisation	Alternatives assessment DPR including impacts assessment
Project Design	ESIA with assessment and mitigation measures All regulatory compliances
Operations	All compliances with PCB, local authorities ESMS and ISO 14001 (GIMS)

Care for environment across for the value chain

Greenko is committed to conserving natural capital. Therefore, it has built and deployed an Environmental & Social Management System (ESMS) based on the International Finance Corporation's (IFC's) Performance Standards. As per this, all its projects are assessed for a need to do ESIA by a third party. Although solar and wind energy projects in India are not required to carry out EIA, most new projects developed by Greenko have undergone ESIA to pro-actively mitigate any issue that adversely impacts natural capital. All impact mitigation measures, which have arisen out of this voluntary ESIA, have been taken up for implementation.

Greenko's projects involve contractors who play a significant role during the construction stage. To involve them in Greenko's endeavour of preserving /conserving natural capital, the EPC contractors, OEM and civil contractors. are required to sign and adhere to a Supplier Code of Conduct which incorporates measures which go towards preserving and enhancing natural capital. The on-site supervisors are also trained to audit adherence to these supplier codes. The observed gaps in following the supplier code of conduct are communicated for addressing those appropriately.



Taking pledge to Save Trees and Save Environment

Greenko commissions third-party audit of ESIA implementation status for about 10 projects every year. The projects for such audits are shortlisted based on (i) the stage of development (under construction, operational); (ii) technology (wind, solar, hydro) and (iii) the stage of ESMS implementation (recently implemented, implemented before at least six months). The findings of these audits are shared with management, along with a observations closure plan. The annual update on the status of implementation and audits is also submitted to the Board of Directors.

Greenko's performance on the metrics relevant to natural capital is presented below.

For all the performance indicators here, the year-on-year comparative could not be shown due to changes in the boundary of the reporting entity.



Earth day Celebrations

Materials: The wind, solar and hydro projects do not consume any fuel for the power generation. Thus, the material consumption in these plants is only towards O&M of plants.

Materials used by weight or volume

SBU Hydro	SBU Wind	SBU Solar	TOTAL
1. Batteries			Number
105	246	44	395
2. Lubrication Oil			liters
10,807	12,220	107	23,134
3. Turbine Oil			liters
19,823	20,817	-	40,640
4. Gear Oil			liters
937	38,232	66	39,235
5. Diesel			liters
1,49,157	2,095	340	1,51,592
6. Kerosene			liters
150	-	-	150
7. Transformer Oil			liters
3,155	11,468	23,135	37,758
8. Grease			kg
843	7,832	1,150	9,825
9. LPG Cylinders			Number
407	765	13	1,185
10. Oxygen cylinder			Number
284	-	10	294
11. SF6 Gas			kg
52	74	14	140

Energy: The projects draw electricity from grid and DG sets during the construction stage and in non-generation hours during the operations phase as well. The energy consumed from these sources in each of the three SBUs is as below.

Energy consumption within the organisation

SBU Hydro	SBU Wind	SBU Solar	TOTAL
1. Grid Electricity Consumed			kWh
12,84,333	35,22,833	1,52,19,809	2,00,26,975
2. Electricity Generated from Diesel Generator			kWh
55,677	8,601	100	64,378
3. Total Energy consumed			kWh
13,40,010	35,31,434	1,52,19,909	2,00,91,353

Most plants use LED lighting, energy efficient equipment, solar lighting and alarm systems etc. The energy consumption, including the auxiliary consumption, is monitored and the best practices are shared among the projects and clusters for replication.

Water: Water consumed by manpower in project offices and sites for day to day needs including drinking, sanitation, cleaning and gardening during the reporting period has been as provided below.

SBU Hydro	SBU Wind	SBU Solar	TOTAL
1. Surface water, including water from wetlands, rivers and lakes			liters
20,000	10,000	8,94,14,456	8,94,44,456
2. Ground water			liters
14,86,180	79,09,180	16,09,920	1,10,05,280
3. Municipal water supplies or private water supply			liters
-	84,54,640	600	84,55,240

*Water withdrawal by source:

Hydro: plant office, washing, gardening, canteen, guest house,

Wind: Plant office, canteen, guest house

Solar: Module cleaning, plant office, canteen, guest house, gardening

In all the power plants, water saving measures have been implemented. Few of the plants in water-stressed regions have also implemented rainwater harvesting from the office and control room buildings. The water used for gardening is supplied by micro-irrigation (drip or sprinkler). The water required for cleaning solar panels is sourced from tankers by local suppliers.



Effective Water Management using drip irrigation

Waste generation and treatment: All the waste generated during operations and maintenance of the plants are categorised and disposed of as per the regulatory requirements. The hazardous wastes include batteries, greases, oil filters, contaminated soils, fluorescent tubes and ink cartridges. These are collected in designated waste collection storage points and also have secondary containment for the leachate collection. The wastes collected are tracked at the site level and disposed of via authorised recyclers within the permitted period as per the waste type.

Hazardous Waste

SBU Hydro	SBU Wind	SBU Solar	TOTAL
1. Used batteries kg			
442	738	63	1,243
2. Hazardous Waste (Used Oil) lit			
15,021	44,035	1,765	60,821
3. Hazardous Waste Contaminated absorbents kg			
236	638	-	874
4. E-Waste kgs			
523	100	120	743

Non-Hazardous Waste

SBU Hydro	SBU Wind	SBU Solar	TOTAL
1. Packaging waste kg			
411	2,113	3,550	6,074
2. Paper waste kg			
57	257	515	829
3. Metal scrap Kg			
1,584	150	-	1,734



Effective Solid Waste Management Practices

Disposal of Waste

SBU Hydro	SBU Wind	SBU Solar	TOTAL
1. Disposed waste oil lit			
13,945	43,915	-	57,860
2. Disposed e-waste lit			
2,410	5	-	2,415
3. Quantity of solid waste (refuse) kgs			
35,310	3,641	14,050	53,001
4. Batteries kgs			
430	738	10	1,178
5. Used filter kgs			
-	679	-	679

5.6.2 Restoring Nature

Greenko goes beyond the regulatory requirements to mitigate impacts on biodiversity and in fact participates in initiatives to restore and conserve ecosystems.

Some of the measures undertaken during the reporting period to protect biodiversity include (i) Greenbelt development using micro-irrigation, (ii) bird nest development at Karad site, (iii) drinking water holes for wild animals from a nearby forest at Karad site (iv) exploring joint projects with state forest departments for conservation of Great Indian Bustard at Rollapadu sanctuary and fish seeding initiatives at the hydropower plants.



Bird Nests provided at Karad



Great Indian Bustard



Disentangling Sea Turtle - *Protecting our ocean health and biodiversity from marine debris*

Greenko in partnership with World Wildlife Fund (WWF) is working towards the conservation of marine biodiversity, with a focus on the conservation of the endangered species of Olive Ridley sea turtles off the coast of India. The project aims to mitigate the threats to marine turtles with the support of the fisher communities & through advocacy at government level.

The fisherman community will be engaged through workshops and awareness drives to adopt sustainable fishing practices and to encourage their participation in adopting better practices to reduce turtle bycatch in trawlers, disposal of ghost nets and encourage retrieval of ghost gear and use of Turtle Excluder Devices (TEDs). Simultaneously, WWF-India will also be engaging with government agencies to promote appropriate policies



An aerial photograph of a dam and a reservoir. The dam is a concrete structure with several spillways, situated in a valley. The reservoir is a large body of water behind the dam. In the background, there are rolling hills and a line of wind turbines on a ridge. The sky is blue with some clouds. A large blue diagonal shape is overlaid on the right side of the image.

6

CONTRIBUTION TO
UNSDG

6 CONTRIBUTION TO UNSDG

6.0.0 Contribution to United Nations Sustainable Development Goals



Goal
Ensure access to affordable, reliable, sustainable and modern energy for all

Approach / Contribution

- Reached 3.2 GW of installed capacity
- No. of Households powered 16297674



Goal
End poverty in all its forms everywhere

Approach / Contribution

Livelihood opportunities generated through business activities 10000 persons benefited

Livelihood opportunities generated through community development interventions 1000 persons benefited



Goal
Ensure sustainable consumption and production patterns

Approach / Contribution

Reduction in Material consumption
Reduction in water consumption
Reduction in energy consumption



Goal
Take urgent action to combat climate change and its impacts

Approach / Contribution

GHG Emissions avoided: 4,297,959 tCO₂



Goal
Ensure healthy lives and promote well-being for all at all ages

Approach / Contribution

Zero fatality and incidence

Beneficiaries of community health improvement interventions 87261



Goal
Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Approach / Contribution

Number of trees planted 20000
Area of landmass prevented against degradation
Area of terrestrial ecosystems protected



Goal
Ensure availability and sustainable management of water and sanitation for all

Approach / Contribution

Number of beneficiaries: 79074 for drinking water projects and sanitation projects amongst community

EPILOGUE



Dear Stakeholders,

Purpose of any business is to create net positive value for the society, environment and economy. To create value in our business, we harness natural capital-land, wind, water and sun. As natural systems are complex and interdependent, we strive to maintain the delicate balance amongst various elements viz., climate, water, land and biodiversity. As you have seen from this report, we made best efforts to conserve and restore the balance and harmony and would double such efforts in the next few years.

People- employees, community, contractors and consumers- have been at the centre of our business. Our business has been and will be steered to improve the lives of people we touch. As has been reported, our work space catalyzes nurturing and growth and in fact assists employees to realize their potential. Cooperation of communities and partnerships with suppliers and customers is critical to our business. While managing elements of human and social capitals, we don't just aim for increase in productivity, continued social licence to operate and gaining cost advantage but balanced deliverance of value and sustained relationships.

Ethics, values and integrity is the constant in our ever-transforming business landscape. This fulcrum is the source of trust reposed in us by our investors across the globe. Our assets are designed, located and managed to harness and be in harmony with the powers of nature and to meet the aspirations of people. This, we believe, is pivotal for building sustainable assets and deliver net positive value.

At Greenko, we are determined to take necessary steps and be a catalyst for change to protect our Planet, while continuing to nurture our People and grow Profits. Accordingly, our accountability to stakeholders would be a new compass financial and non-financial values. This we believe, will steer us in the right direction, at each step, to achieve sustainable development. United Nations Sustainable Development Goals is another compass with which we measure and evaluate our progress and take right decisions as detailed in this report.

“At Greenko, we pursued value creation model that is fundamentally sustainable and undertook reporting to measure, assess and disclose our progress in contribution to net positive value”

We recognize that our business primarily addresses UN Sustainable Development Goals 7 and 13. We have been and continue to take leading role in advocacy and implementation of actions to achieve these goals and sub goals in the regions of our operation. In addition, our community development interventions are designed to address other important UN Sustainable Development Goals.

At Greenko, we pursued value creation model that is fundamentally sustainable and undertook reporting to measure, assess and disclose our progress in contribution to net positive value. Through this journey, for over a decade, our commitment to sustainable development and the belief that pursuing this path firmly delivers sustainable shareholder value, has been reinforced. We are already witnessing that technology changes have made delivery of firm renewable power in response to demand, has become feasible. Technology can render regulatory clutch less relevant and cost and scale barriers can be overcome to mainstream renewable energy to displace even non-electric forms of energy. This trend will continue irreversibly and of course, the renewable energy systems and business models would have to transform.

As detailed in this report, we at Greenko have begun the journey-GKO 3.0, to address the challenges of digitalisation by transforming renewable energy to reliable, schedulable, and flexible energy and finally RTC renewables replacing fossil fuels. While, we are determined to be steadfast in our pursuit of generating and distributing value, we recognize the salience of partnership with all stakeholder groups. This partnership have to transcend the transactional exchanges and extend to shared value creation. We value your opinions on our business transformation journey- our efforts to power our common future. as also your views.

Mahesh Kolli
President & Joint Managing Director





