

THE XYNTEO EXCHANGE/INDIA2022 02 APRIL 2019 ENERGISE STUDIO

THE
XYNTEO
EXCHANGE/
INDIA2022
APRIL
2019



HOSTED BY **BAKER HUGHES**
a GE company

HOSTED BY



BAKER HUGHES
a GE company



TechnipFMC

TATA TRUSTS





CONTENTS

The Xynteo Exchange/India2022	03
The Studio	06
Our problem statements	08
Voices in the room	10
Problem 01: Aggregation of feedstock for biofuels	12
Problem 02: Adoption of green energy technologies in urban/ commercial areas	16
Problem 03: An integrated solution for rural communities	20
The people in our Studio	24

Xynteo alone is responsible for this document and any errors it contains

Xynteo® April 2019

Registered address:

Xynteo India Private Limited
C/o Gaurang Merchant & Co. 1519 Floor 15 Plot 221, Maker Chamber V, Jamnalal
Bajaj Marg Nariman Point, Mumbai, Mumbai City, Maharashtra, India, 400021

Corporate Identity Number: U74999MH2017FTC312112

GST Number: 27AAACX2375A1ZL

Designed and typeset by oneagency.co



THE XYNTEO EXCHANGE/INDIA2022

Growth is a powerful force. Over the past few centuries, the existing growth model has catalysed enormous progress. It has been a force for good.

But this growth model is no longer fit for our needs – or those of generations to come. In many ways it has become a destructive force, promoting short-term wins over long-term prosperity, desolating natural resources and widening exclusion.

Occupying varied locations throughout the Nehru Centre, one of the most iconic buildings in Mumbai, the Xynteo Exchange/India2022 takes inspiration from a country that has the power to transform, at the same time as it undergoes its own transformation.

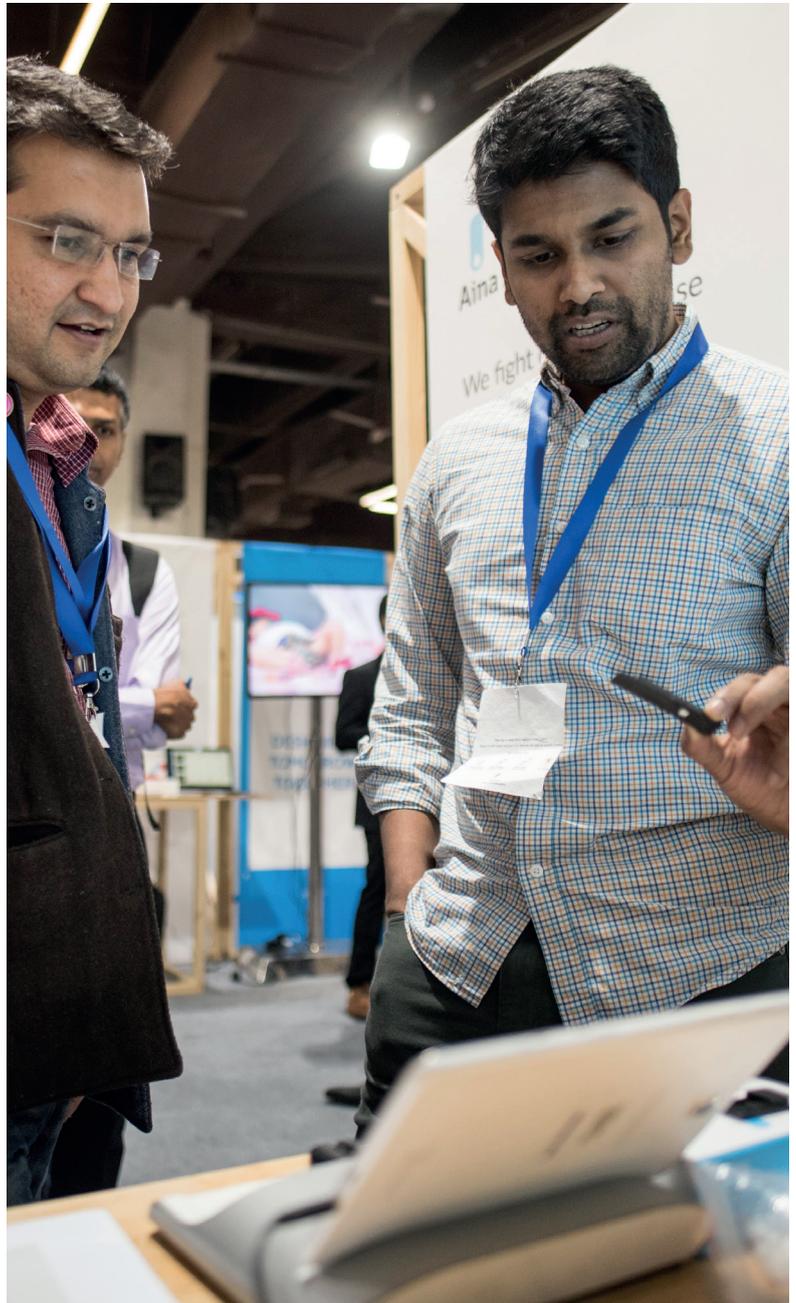
The Xynteo Exchange/India2022 is the annual gathering of the India2022 coalition. Launched in 2017 and powered by Xynteo, the India2022 coalition is a purpose-driven global business coalition committed to creating a new model of growth in India by 2022, the 75th year of India's independence. The Exchange is a platform to bring together leaders, capital, talent and ideas to accelerate commercial projects that can advance a new growth model. The first Exchange in 2018 brought together over 300 leaders from business, the start-up community, academia, research institutions, the arts and government.

On 02 April, over 400 leaders heard from India2022 partners – Baker Hughes, a GE Company; Hindalco, an Aditya Birla Group Company; Hindustan Unilever, Cyient, Tata Trusts, Shell and TechnipFMC about the exciting progress being made across the coalition's four impact tracks – Waste to Value, Energise, Healthcare and Sustainable Mining. We also announced the joining of two new partners – State Bank of India and WPP – at the 2019 Exchange.



Subhashini Chandran

Managing Director, Xynteo India







THE STUDIO

Redefining energy in urban and rural India

At the heart of the Exchange was a series of Studios, where we brought leaders together to try to develop commercial solutions to human problems.

In 2018, India announced an ambitious renewable energy target to install 227 gigawatts (GW) of renewable capacity by 2022, a quadrupling of renewable energy capacity in seven years. In addition to this, the government has publicly outlined what post-2020 climate actions they plan to take as part of the United Nations Framework Convention on Climate Change. In this regard, the government has pledged to achieve about 40 per cent cumulative electric power installed capacity from non-fossil-fuel-based energy resources by 2030, with the help of transfer of technology and low-cost international finance, including from the Green Climate Fund.

The motivation behind these commitments was to seek global leadership in combating climate change, energy security, drawing more (and newer) sources of capital, and simply more cleaner energy at lower prices.

Even then, market penetration of cleaner energy, including cleaner fuel sources, is low. Penetration is even lower if one considers access to cleaner energy in rural households, and small and medium enterprises.





The Energise Studio aimed to address some of these challenges by creating a shared understanding of the sector and players and how best to work with these stakeholders to achieve India's energy transition targets.





OUR PROBLEM STATEMENTS

In the Studio we catalysed action around three problems aimed at accelerating Energise impact track projects, carefully selected by Shell, Baker Hughes, a GE Company, TechnipFMC and Tata Trusts before the Exchange.

Problem 1: AGGREGATION OF FEEDSTOCK FOR BIOFUELS

Indian cities produce 62 million tonnes of solid waste per year, but only about 75-80% of the municipal waste gets collected and only 22-28% of that waste is processed and treated, according to the Ministry of Environment, Forests and Climate Change. Challenges for scaling up biofuels in India are largely linked to the upstream value chain, feedstock availability and economic viability of technologies. More importantly, efforts in the sector, both in terms of aggregation of feedstock and technological innovations, are fragmented.

The challenge: How might we work with local stakeholders across the value chain to improve the quantities of waste collected in cities and address the challenge of feedstock availability?

Problem 2: ADOPTION OF ENERGY TECHNOLOGIES IN URBAN/ COMMERCIAL AREAS

The commercial and industrial sector accounts for 60% of India's energy consumption with 70% of buildings planned for 2030 yet to be built. Though solar, gas and wind technologies and the related energy efficiency solutions exist in urban areas, the adoption and implementation of these technologies is low. Moreover, a 6x increase in energy consumption from buildings is expected between circa 2015 to 2047.

The challenge: How might we improve adoption of green energy technologies across industrial and commercial segments and address roadblocks?



VOICES IN THE ROOM



India's energy challenge is a global challenge. We have a tremendous role in the impact we will potentially be having in the years to come. The energy system has to grow 2.5 times larger by 2035 to be able to sustain development that is the expectation of our population.

Nitin Prasad
Chairman,
Shell India





“
The biggest thing in the climate world is the release of IPCC report in October last year – a shot in the arm for people working in climate. The difference between 1.5 to 2 degrees is much more substantial. That’s where we need to be driving towards. Often, we think about innovation, people think we are making choices – we have to do everything. Really go after everything. The clock is ticking quickly.

Helen Clarkson
Chief Executive Officer,
The Climate Group

“
In India today, 26,000 tonnes of plastic is produced every day of which less than 20% is reused, and the remaining 80% goes into landfills, road sides, rivers or seas. The amount that we actually recycle is not sufficient, but there is no system or process to collect and segregate the waste... How do we segregate PVC from other plastics, how do we collect plastic waste – is it a public venture or private venture? For Biomass, collection is a problem. We need to join hands. We need to find a technology that can be scaled. TechnipFMC, as part of India2022’s Energise Impact Track, has looked at more than 25 technologies. Each technology has its pluses and minuses, but eventually we have narrowed it down to three technologies. These three technologies have some challenges but also have some economics that work.

Bhaskar Patel
Managing Director,
TechnipFMC India



01



PROBLEM 01

AGGREGATION OF FEEDSTOCK FOR BIOFUELS

With rapid urbanisation, India is facing a significant waste management challenge. Over 377 million people live in urban areas, generating 62 million tonnes of municipal solid waste each year. Only 43 million tonnes of that waste is collected, about 12 million tonnes of which is treated and the rest dumped in landfills. In addition, the agricultural sector generates about 500-650 million tonnes of waste each year. Solid waste management services are one of the basic services provided by municipal authorities in India. However, municipal authorities often deposit the solid waste they collect at a landfill site within or outside the city in an unscientific manner, for example: There are more than 20 exhausted landfill sites in the country and are running beyond their planned capacities.

Energy from waste is seen as a useful element in the waste management hierarchy as it reduces the volume of waste ultimately ending up at a landfill site, and also converts the waste into organic manure as a by-product.

The key to efficient waste management is to ensure proper segregation of waste at source and then to ensure that waste goes through different streams of recycling and resource recovery. There have been technological advancements in processing, treatment and disposal of solid waste but there is still a lot of uncertainty in feedstock availability. Laws vary by state, and it is difficult to secure and maintain constant and sufficient quantities of quality waste for conversion operations.

In the Studio, the goal was to focus on the upstream side of the waste management system and address gaps in existing city-level waste management value chains, especially with regard to food waste and biomass availability. After aligning on the root causes for key challenges, participants brainstormed potential solutions and ideas to improve the value chains discussed.

THE CHALLENGE

How might we work with local stakeholders across the value chain to improve the quantities of waste collected in cities and surrounding areas, and address the challenge of feedstock availability?



THE SOLUTION CONCEPTS

Food waste

Challenges identified in the current system:

1. Limited segregation at source, inefficient segregation practices further down the value chain, and the lack of technologies to support segregation activities
2. Unwillingness to pay for waste collection and segregation services
3. Lack of infrastructure, including dustbins, transportation for types of waste, among others
4. Traditional community burning of waste
5. Limited capacity in key stakeholders, eg for the municipality, there is a lack of trained manpower, as well as multiple waste types that need to be managed
6. Lack of financial transparency in the value chain increasing distrust in the system
7. High logistics cost to transfer waste, across different points in the value chain.

The ideas:

1. Privatisation through digitisation at the community level for waste collection and aggregation, with decentralised models for source aggregation, and a digital or physical marketplace for waste
 - a. A digital platform could increase transparency of finances allocated and utilised in waste management across the value chain
 - b. A platform could also be set up to incentivise relevant stakeholders in the value chain
2. The use of climate funds and other relevant funds focused on urban development initiatives for incentivising key stakeholders in the value chain
3. Introduce a reverse bidding process for waste management at a city-level, with a focus on the quantity and quality of waste collected
4. Introduce low cost and consumer friendly technologies for segregation and aggregation of waste.



It is the need of the hour to talk about wet waste generated in cities equally with other forms of waste.

Som Narayan
Co-Founder,
Carbon Masters



Pratik Vinayak Gholkar
Student,
IITB-Monash Research Academy

Agricultural waste

Challenges identified in the current system:

- 1.** Limited storage capacity for farmers to store waste generated
- 2.** Fragmented cooperatives make waste collection difficult
- 3.** Costs for transfer of waste to be borne by farmer
- 4.** Limited data available on the quantity of biomass waste generated
- 5.** Limited technologies available to compress/compact biomass for bulk movement
- 6.** Uncontrollable factors – like perishable materials and uncertainty of climate – that affect crop yield
- 7.** Inconsistent volumes of waste generated with no quality assurance of the feedstock
- 8.** Economic viability diminishes over 50km due to high logistics cost.

Ideas:

- 1.** Digitisation of value chain
 - a.** Digitisation of value chain stakeholders via a platform utilising historic data trends eg rain correlated to district-wise crop yield, water and fertiliser usage, could be used to create predictive data on the quantity and quality of biomass waste generated
 - b.** This would support value chain stakeholders to prepare for the quantity and quality of waste generated in a transparent manner
 - c.** An incentive structure could be built into the platform and linked to amount and quality of waste deposited
- 2.** Standardised measures for regulation of quality of waste, with an incentive and penalty scheme built in around the quality of waste provided
 - a.** Standardised technologies for consistency of waste quality to be rolled out pan-India
 - b.** Non-financial incentives can be provided to farmers eg trophies, awards, grain subsidies
- 3.** Utilise collection point synergies with local produce markets or farmer collective mini-hubs for pick-up of aggregated waste
 - a.** This could be supported by a formalised listing of farmers, that can sign-in and input their waste produced at the mini-hub or market
- 4.** Introduce compression technologies for biomass to increase the commercial viability of transportation.

02



PROBLEM 02

ADOPTION OF ENERGY TECHNOLOGIES IN URBAN/ COMMERCIAL AREAS

India is about to experience a huge boost in construction with around 70% of buildings that will exist in 2030 is yet to be constructed. Today, the construction sector is a significant user of energy in India, accounting for more than 10% of the country's total energy consumption. It is estimated that the expected rapid increase in air conditioning penetration will result in a peak demand addition of about 150 GW by 2030; and between 300 and 500 GW by 2050.

Coal in India is the central fuel in the energy mix, but the country's recent climate pledge underlined a commitment to the growing role of low-carbon sources of energy, led by solar and wind power. India has pledged to reduce its emissions intensity by 33-35% below 2005 levels, by 2030.

In the Studio, the goal was to focus on understanding the challenges that exist in adoption of solar power, for commercial and industrial segments. After aligning on the key stakeholders and the challenges they face, participants brainstormed potential solutions and ideas to improve adoption of green technologies.

THE CHALLENGE

How might we improve adoption of green energy technologies across industrial and commercial segments and address roadblocks?



THE SOLUTION CONCEPTS

During the exercise, participants went through challenges faced by key stakeholders in the solar ecosystem including energy service companies (ESCO), distribution companies (DISCOM), government, renewable energy (RE) developers, financiers, customers and engineering, procurement and construction (EPC) companies.

Key challenges that were discussed:

1. The lack of benchmarking parameters and baseline building data
2. The implications of policy changes that could make projects unviable due to non-performing assets and limited flexibility in such policies
3. Concerns over long-term commitments
4. The lack of commercially viable energy storage solutions in the sector
5. The lack of financing options and products that are suitable for RE projects
6. The lack of awareness of the benefits of renewable energy for users and on the environment
7. The limited adoption of energy efficiency solutions because of perceived unreliability and lack of awareness.

The ideas:

1. Greater engagement around the benefits of adopting green energy technologies across industrial and commercial segments
 - a. Creating awareness and commitment from top management in private sector companies for energy efficiency targets

- b. Leveraging corporate ecosystems such as industry bodies to raise awareness and to create a pool of funds

2. New technologies

- a. Movable rooftops – a plug-and-play model of solar panel technology that can be easily assembled, installed and scaled
 - b. A data platform that can allow public sharing of local/rooftop energy production and consumption to improve grid reliability, and energy payments made by consumers to aid in competitive pricing for RE developers and transparency for financiers

3. Flexible financing

- a. Design financial products to reduce risk of price uncertainty for solar power
 - b. Pooling mechanism for multiple developers to diversify risks and improve credit worthiness for financing

4. Standardised policy

- a. Develop a standardised process across states for creating policies, to help reduce regional differences and bring in long-term regulatory certainty
 - b. Standardised regulation on energy consumption per unit of product or space
 - c. Roll out subsidies through direct benefit transfer schemes to circumvent delays and lack of transparency in the system
 - d. Incentivise daytime consumption of power generation by decreasing per unit price during peak hours.



It is easy to blame government for things going wrong and say that government should make policies. Stakeholders need to help government and increase their participation in policymaking.

Vishal Tripathi

Research Associate,
Centre for Governance Research & Analysis



Mihir Shah
Tata Capital



03



PROBLEM 03

AN INTEGRATED SOLUTION FOR RURAL COMMUNITIES

Rural India is estimated to have a retail consumer market worth USD 100 billion by 2025, with 1.5x increase in consumption in rural areas compared to urban areas, expected by 2025. Still it is an untapped market; improving energy access could help in improving income by up to 30%, thereby helping to unlock market opportunities in rural areas. A paradigm shift is needed to move towards a new growth model for rural markets – anchored by the private sector and drawing on synergies to demonstrate scalable commercial opportunities with social and environmental returns.

India2022 partners – Shell, GE and Tata Trusts – are currently working on “an integrated solution for rural communities” project to address some of the systemic challenges in rural markets. The goal for the project is to increase the viability of business and philanthropy-led joint interventions in rural communities by developing fit-for-purpose integrated solutions that have internal synergies and can generate sustainable demand for energy and support the acceleration of rural growth.

A pilot in Assam (Kamrup and Nalbari districts) is being developed as a proof of concept for developing a sustainable model for rural markets across agro-processing, weaving, energy and irrigation facilities. Intensive engagement with approximately ~20,000+ households (~100,000+ lives) is proposed to achieve targeted impact over a period of three years for the pilot with a focus to increase the incremental income of the communities and improve efficiency in processes.

In the Studio, unlike for other problem statements where we were deliberating on sectoral challenges, for this problem statement, partners took industry leaders and sector experts through the pilot design to gain experience and learnings from the sector and seek inputs on the implementation model.

THE CHALLENGE

How might we develop market-based models which engage solution providers, implementation partners and funding organisations to collaborate on integrated solutions for rural communities?



THE SOLUTION CONCEPTS

Challenges identified in the current system:

- 1.** Data on demographics and market size is often outdated and unreliable, so solution providers find it difficult to identify the size of the target consumer group and potential scale of opportunities
- 2.** There is a need to lower the cost of capital for innovators and solution providers to access new markets. Different funds such as risk capital and revolving funds or avenues eg cooperatives, farmer producer companies (FPCs) and panchayats can help ease this burden, but require sustained operations. Partnerships between solution providers and consumer finance companies are currently lacking. This could address the initial high-cost barriers for implementation agencies and solution providers to pilot these solutions and innovations
- 3.** A feedback mechanism for users of implemented solutions is often missing in rural interventions and programmes
- 4.** Pilots need to plan for interventions and support that may be required post their intervention period, to achieve scale.

The ideas that emerged to accelerate the project idea:

- 1.** Pilot design:
 - a.** Women have consistently been found to be early adopters of various interventions so can be leveraged as the nexus for implementing interventions
 - b.** Existing networks of FPCs and self-help groups are good avenues for demand aggregation and marketing

- c.** Negative impacts associated with projects must be taken into consideration, eg environmental and social impacts
- d.** Community contribution or involvement in planned interventions helps create ownership of models and products being introduced
- e.** The cost of the project should also include what has already been spent in development of the idea, eg: project operationalisation that is being underwritten by partners along with resource costs of the core team
- f.** The income improvement number is currently underestimated as the value addition that the pilot is creating can lead to 2-3x growth, compared to the current projection of 20-30%.

2. Implementation:

- a.** Explore existing government schemes eg for solar pumps and integrate into the existing model
- b.** Fair trade and organic certification for weaving and agriculture respectively can help increase margins for products being sold
- c.** Capacity building of implementing agencies and communities is key for training of newly introduced products and financing mechanisms
- d.** Menthol and Citronella farming in Assam could be explored
- e.** The programme should include gathering feedback from the consumers during implementation, while also ensuring impact metrics measurement before and after the pilot, and independent monitoring and evaluation of the pilot.



Seeding and scale of implementation, along with simplicity and replicability are key for the success of a pilot.

Nasser Munjee
Chairman,
Aga Khan Foundation India



Shashank Jha
Country manager, Oil Field Equipment,
BHGE India



Gowtham Sundara Raju
Consultant – Energy Practice,
Villgro Innovations Foundation



THE PEOPLE IN OUR STUDIO

We'd like to thank the following participants for their time, energy and creativity during our Studio at the Xynteo Exchange/India2022

Ravi Addala

Senior Sales Manager,
Baker Hughes, a GE Company

Min Ameen

Principal Change Strategist,
Innovation Forum Norway

Naman Awadhiya

COO, Mobilytics

Sunil Ballal

Director, InnoDI Water Technologies
Private Limited

Rajdeep Baniya

Commercial Advisor,
Shell group of companies in India

Jayesh Barve

Principal Engineer, GRC,
GE Global Research

Ashish Bhandari

Vice President,
Baker Hughes, a GE Company

Aman Bhaiya

Assistant Vice President & Program
Head, SBI Foundation

Harry Brekelmans

Projects & Technology Director and
member of the Executive Committee,
Shell group of companies in India

Ashish Chicksena

Director, Global Infrastructure
Partners India LLP

Vijay Choudhary

CEO, Mobilytics

Anindya Chowdhury

Country Manager – Energy
Transitions Program,
Shell group of companies in India

Helen Clarkson

Chief Executive Officer,
The Climate Group

Gabriele D'Amato

Commercial Director,
Baker Hughes, a GE Company

Tushar Devadiga

Process Engineer, TechnipFMC

Vikas Desai

Vice President Of Engineering at GE
Oil & Gas Digital,
Baker Hughes, a GE Company

Gautam Dey

Senior Manager, CSR &
Sustainability, TechnipFMC

Chaitanya Dhareshwar

Head of Crop Management,
Bayer Crop Science

Omkar Dhurat

Student, Ramnarain Ruia
Autonomous College

Maruthi Ethakota

AVP, India Head of Process &
Technology, TechnipFMC

Viraj Gada

India Head, Gogla

Siddharth Gahoi

Senior Executive Programs,
Tata Trusts

Pratik Vinayak Gholkar

PhD Scholar,
IITB-Monash Research Academy

Kalyani Ghonge

Engineer – Offshore Piping,
TechnipFMC

Sandeep Goswami

Co-Founder and Business
Development, RightWatts

Neeraj Hanumante

PhD Scholar,
IITB-Monash Research Academy

Asha Narayan Iyer

Executive Director,
Children of the World (India) Trust

Shashank Shekhar Jha

Country Manager,
Oil Field Equipment,
Baker Hughes, a GE Company

Rannveig Johansdottir

Global Innovation Manager,
Elkem

Rajkumar Kalantri

Executive,
Green Urban Eco Services

Sanjiv Kanwar

Country Manager,
Yara International ASA

Oshin Katulkar

Business Development Advisor,
Shell group of companies in India

Chandrakant Komaragiri

Country Director, Ennovent

Terje Knutsen

EVP, Sales & Marketing,
Yara International ASA

Tshering Lama

Co-Founder and Chair,
Idea Studio Nepal

Vishal Ramesh Lolam

Student, Ramnarain Ruia
Autonomous College

Rahul Maheshwari

Advisor, Culture and Public
Diplomacy, The Royal Norwegian
Consulate General Mumbai

Kalyan Mangalapalli

Vice President, IoT and Distributed
Energy, Amzur Technologies

Sharad Mittal

Commercial Manager,
India Growth Projects,
Shell group of companies in India

Perna Mukharya

Founder, Outline India

Vishwa Mukhtyar

Upstream Asset Support, India
Growth Projects, Shell group of
companies in India

Nasser Munjee

Chairman,
Aga Khan Foundation India

Akash Nahar

Director, YWC Social Ventures

Srinivasa Namburi

Director, Hardware, Amzur

Som Narayan

Founder/CEO, Carbon Masters

Deepak Natarajan

CFO – India Geo Market,
Baker Hughes, a GE Company

Carl Nasset

COO, Empower

Rewasa Nishchal

Program Manager, Tata Trusts

Chesty Pandey

MSc student, Ramnarain Ruia
Autonomous College

Shrikant Panikar

Senior Manager Communications,
TechnipFMC

Bhaskar Patel

Managing Director, India
TechnipFMC

Siddhesh Phadke

Engineer – Mechanical & Thermal,
TechnipFMC

Thierry Pilenko

Executive Chairman, TechnipFMC

Shankar Rao Piriya

Director of Information Technology
& Sustainability, Amzur

Nitin Prasad

Chairman,
Shell group of companies in India

Rahul Pruthi

Head Sustainability, Tata Power

Damodar Pujari

Project Officer, UNDP

Gowtham Sundara Raju

Consultant – Energy Practice,
Villgro Innovations Foundation

Jayadeva Ranade

President, Centre for China
Analysis and Strategy

Madhusudhan Rao

Managing Director, Oorja Solutions

Pradeep Rapole

Head, Sales and Marketing,
Oorja Solutions

Kapeesh Rustagi

Senior Sales Leader, GE Power

Venugopal Sampathkumar

Director, Energy Hive

Shashank Sanket

Business Development Advisor,
Shell group of companies in India

Mihir Shah

Senior Manager, Tata Capital

Chetna Sharma

Business Development Advisor,
Shell group of companies in India

Iffat Siddiqui

Business Development Advisor,
Shell group of companies in Indi

Lorenzo Simonelli

Chairman and CEO, BHGE

Jarnail Singh

India Director, The Climate Group

Suvarna Sohan

PhD Scholar,
IITB-Monash Research Academy

Manas Tewari

State Manager, Yara

Vishal Tripathi

Research Associate, Centre for
Governance Research & Analysis

James Unterreiner

General Manager Startup Hub,
Shell group of companies in India

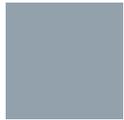
Mayank Upadhyay

Application Engineer,
Baker Hughes, a GE Company

Koushik Yanamandram

Head of partnerships, Sistema.bio

THE
XYNTEO
EXCHANGE/
INDIA2022
APRIL
2019



HOSTED BY **BAKER HUGHES**
a GE company

HOSTED BY



BAKER HUGHES
a GE company



TechnipFMC

TATA TRUSTS

