



GREENFIELDS

The Shift to Green Industry
- Hopes and Challenges

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FOREWORD

Green fuels play a crucial role in the journey of any industry towards sustainability. For over 100 years, fossil fuels have been the sole energy source for industries. However, over the past 3 decades, there has been a strong surge towards sustainable and green (or renewable) energy sources. As the impact of climate change is felt more intensely across the world, this transition is hastening. All stakeholders are now consciously looking to reduce their carbon footprint and participate in climate mitigation.

Despite a firm commitment to this transition, a few challenges still need to be addressed. The industry's supply side is highly unorganised and does not have the level of professionalism seen on the demand side or the consumption companies. Secondly, supply is scattered with rural, non-industrialised sources where infrastructure is subpar. Labour, transport, equipment availability and the availability of finance pose various hurdles for the manufacturers/suppliers of green fuels. The unpredictability of the monsoons does not make things easier. In spite of this, the industry is forging ahead with firm resolve, replacing fossil fuels with biofuels.

In this issue, you will get insights from Mr. Pradeep Bhargava, a prominent industry leader, championing the cause of green industries. This issue also features our valuable customer, Mr. Arvinder Singh Ahuja, a committed green warrior who has taken noteworthy steps towards a sustainable future, including the restoration of a water reservoir and the creation of Miyawaki forests in the middle of a thriving MIDC. We also feature our team member, Tushar Punyapreddiwar who shares insights from his journey with us over the past year.

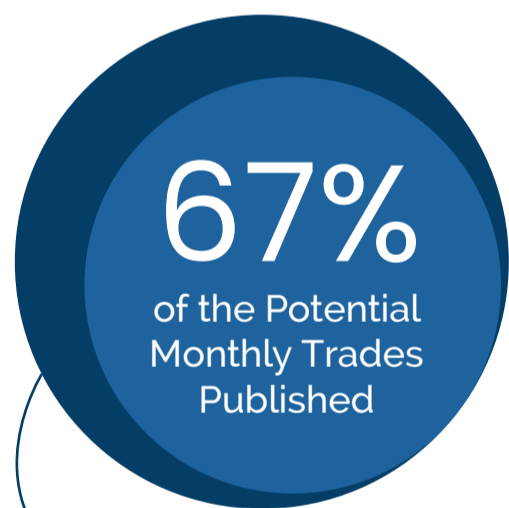
I hope you will enjoy reading this issue as much as we did putting it together for you.

Regards,

Tushar Lowalekar

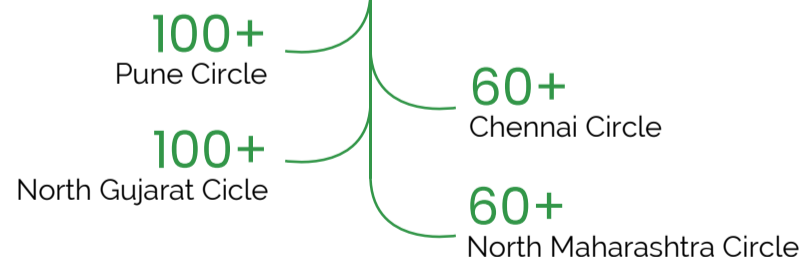
Founding Member and Chief Business Officer
BiofuelCircle

PLATFORM UPDATE



350K MT

Monthly Trading Potential
on the Platform



126K MT
Open Interest

(buy & sell open trade opportunities on the platform)

Glimpses of the Future

Pradeep Bhargava on the true meaning of 'green'

Pradeep Bhargava has over three decades of experience in key leadership positions at companies like Persistent Systems, Cummins, Sharp, G.E. Lighting, and Bharat Forge. He has worked with the government of India at the Atomic Energy Commission, Electronics Commission, BHEL, and served as a consultant to UNDP & World Bank. Pradeep has worked extensively for social and environmental welfare. With CII's Green Co., he is creating the first-of-its-kind framework to evaluate the eco-friendliness of companies and provide guidance on how to make their products, operations and services 'greener'.

What does it mean for a company to be 'green'?

When I started this work over a decade ago, the word 'green' did not mean what it means today. I set up the first green factory in India - the Cummins Green factory in Ranjangaon. Green buildings existed there before - they were using the right material, lighting, insulation, and rooftop solar. But we began to ask - Okay so you have a green building but, you're making a red product inside, so you're not really green, right?" Or if someone has a green product but a red manufacturing process using inefficient machines and generating excess waste, they're not truly green either.

A green company is more than just a green building, green product, and green supply chain. We must recognize that greenness has to seep into every aspect of the company. You need to consider much more than your limited geographical space or your specific operations. You must recognize the universality of green.

What progress have you witnessed in India's 'green' industrial transition?

We used to tell people - Please make the switch to green, it's the right thing to do, but now I tell them it's stupid if you don't do it. What's good for the environment is good for your bottom line.



Pradeep Bhargava

The business case for green is so strong, you don't need to be a scientist or a businessman to figure that out. Once upon a time, you had to ask - I will invest now but what will be my payback period? Today, you don't have a payback period, you will receive everything you invest in the first year.

We've reached this stage due to 3 factors:

- Technological advances have made renewables inexpensive and green a reality.
- Social awareness and fear about the climate has grown; everyone is starting to think deeply about their grandchildren and the future of the planet.
- New industrial norms and regulations: ESG companies are not willing to buy a product from those non-compliant with environmental norms.

These new standards are driven by awareness, activism and technological advances.

So today, we've reached a place where you don't have to say why green but say why not green?

What will be the key features of this new 'green' industrial structure?

The process of going green has to be democratized and decentralized. You can't make decisions without including the voice of everyone the decision will impact. You can't have green energy just in the big cities; it has to be at a village level, and it has to have distributed consumption.

The rural economy will deeply benefit from a distributed economy. It will create a wider cycle of generation and consumption.

Take the case of biomass. If we want to use agricultural waste for bioenergy it has to be decentralized. The work of BiofuelCircle will help integrate the rural economy into the industrial. This will give rise to rural employment of categories that did not exist before. Various people will get involved in the making of pellets and briquettes, the collection of waste, storage, transport, and so on. It will generate distributed economic activity in the region and socially benefit the community by turning its idle mind into an active one.

So we need to have decentralisation and then set up the infrastructure to connect these distributed players to wider markets.

What do you think this infrastructure for a decentralised economy will look like?

The reality is there is no other way we can create this transformation but with digital technology. BiofuelCircle has realized this. I grew up in an analog world but for a problem like this, I don't have an analog solution. Going physically to a mela or rally, the stuff that happened 30 years ago, will no longer work. I'm not a technology guy but I concede: the only way to reach people seamlessly is digitally.

With digital technology, today everyone is equipped with the power of knowledge and information, and that equalizes us. The digital infrastructure empowers rural players to recognize the value of what they hold.

Pioneering a New Industrial Future:

Unpacking the work of Pal Fashions

In Tarapur M.I.D.C., the sky is grey and heavy, as though weighed down by the thick, black smoke rising from every direction. The air is filled with the sort of smells that make you want to take shorter breaths. Unpainted, grey structures loom tall as far as the eye can see, sending forth a tuneless screech of machines.

Yet, behind one seemingly ordinary factory, a gate opens into a haven of green, bursting with life amidst the grey and gloom. Here, a young forest offers instant respite to the senses. The chattering of birds and the rustling of leaves drowns out the noise of machines. Thickets of green and large blooming flowers soothe the eyes and the fresh smell of earth nourishes the lungs. This oasis of life is the Pal Forest grown under the faithful care of Pal Fashions Private Limited.

Pal Fashions is setting a new standard for industries where success is not a zero-sum game gained at the expense of the earth or its people. At a time when our planet's life-sustaining balance is dangerously threatened, their work is a potent reminder of how industries can join in the renewal of life on earth.



A Pal Of the Earth And its People

Pal Fashions, incorporated in 1980, has its textile manufacturing plant in Tarapur M.I.D.C, Maharashtra with the capacity to produce over one million meters of cloth per month. Since its inception, Pal Fashions has been committed to the social and ecological welfare of the region. The Pal Forest planted in 2016 using the Miyawaki technique is just one of many initiatives in service of this commitment.

Inspired by the success of the Pal Forest which became self-sufficient after three years with a tree survival rate of 95%, Pal Fashions committed to growing 100,000 thriving trees in Tarapur. At the time of this writing, they have already grown 10 forests with over 82,000 trees.

The work of Pal Fashions is guided by an appreciation of the interconnectedness of all life. The Shri Krishna Sarovar - the largest man-made lake of Palghar - is a compelling example of how a human community is only as healthy as the environment it inhabits.

Every year, Tarapur is inundated with seawater that floods agricultural fields, mixes with fresh water, seeps into the ground and enters borewells. This affects soil salinity making it unfit for farming, impacting a farmer's primary source of livelihood.

For the past few years, the Bhajipala Phalutpadak Sanstha, a local co-operative, has been trying to create a bund to store fresh rainwater in the monsoons and keep away the seawater. Earlier this year, with the generous assistance of Pal Fashions, they created a freshwater lake that can store millions of gallons of water.

"We've checked the salinity of borewells in several nearby villages and it has fallen drastically this year. Farmers have been able to get a better yield. You see those banana trees on the edge of the lake there? A year ago, they would not survive here because the water was so salty," says Santosh Patil of the Bhajipala Phalutpadak Sanstha. A whole ecosystem is developing around the restored lake which houses a variety of freshwater fish and has begun to attract migratory birds.

Becoming Carbon-negative with Biomass

The story of Pal Fashions' socio-environmental impact does not end here. For the past 14 years, Pal Fashions has been completely off fossil fuels. They are currently carbon-negative and have qualified to receive carbon credits. In 2008, as crude oil prices shot up, many industries shifted to coal as the cheapest alternative. But Pal Fashions walked a different path and chose biomass briquettes to power their boilers and thermic fluid heaters.

“For the last 14 years, we have been sourcing agri-waste briquettes the conventional way. Now with BiofuelCircle's online platform, we are able to source briquettes at optimal rates with much ease. We want to take our journey to the next level by replacing fossil fuel in many more industrial units of Palghar and Thane districts.

Arvinder Singh Ahuja
Chairman, Pal Fashions



Pal Fashions was averse to using coal because it is not a clean source of energy in more ways than one. A coal-powered factory has soot flying everywhere, wearing down the machines, clogging workers' lungs, and damaging the quality of the product.

But the Pal Fashions' manufacturing facility, powered by briquettes, suffers from none of this filth. Their 20-year-old embroidery machines look almost as good as new, operating in rooms that are spotless from ceiling to floor. The air is clean and easy to breathe. Employees at Pal Fashions are happy to assure you that “if you walk into the factory with white socks, you will leave with white socks.” All of this makes the factory a healthy and productive workspace.

Pal Fashions has become a model for industries in the region, inspiring others to make the shift as well. “Back in 2008, no one had really heard of the word 'briquettes'. I created a website with information about briquettes and a list of briquette suppliers in the region to help interested industries. This was 14 years ago. Then, BiofuelCircle came along with its state-of-the-art technology that promised to transform the industry for good. I see this platform as the future and this is why we've decided to partner with BiofuelCircle,” reflects Ahuja.

A Symbiotic Partnership

BiofuelCircle's partnership with Pal Fashions is mutually beneficial. We share a vision to create an integrated rural ecosystem for biomass that benefits everyone involved from the farmers to the industries. We share a desire to aid the transition of enterprise and industry towards green practices and greater social responsibility.

Pal Fashions was one of the first industries to join our platform and now uses it end-to-end. After experiencing first-hand the benefits of the digital platform, Pal Fashions realizes that this technology is key to enabling the large-scale adoption of bioenergy.

Pal Fashions is working with BiofuelCircle to create an industrial supply cluster for biomass in the region. “I'm very happy to be a rural market maker for BiofuelCircle since it will help thousands of farmers put their agricultural waste to use, reducing the consumption of fossil fuels, and providing economic benefits to all,” says Ahuja.

Our new initiatives in collaboration with Pal Fashions are to deploy the platform to promote collection and consumption of dried coconut shells and frond.

Together we are exploring viable technical solutions to increase usage of rice husk, straw and other biomass from paddy farmers of Palghar and Thane districts. Together, we are committed to expanding the briquetting capacity of the Palghar and Thane regions to make use of all the agricultural waste in Maharashtra.

BiofuelCircle benefits deeply from its partnership with Pal Fashions. Their longstanding experience with biomass offers us invaluable feedback to make our technology more effective at solving the unique problems of industries in India.



Shri Krishna Sarovar, Palghar



The Pal Forest, MIDC, Palghar

The Dawn of a New Type of Industry

“As humans, if you keep everything to yourself, you will not retain it for long. The more you share, the more you will have,” reflects Ahuja. Once we understand this principle of abundance, the identity of an industry expands beyond its profit margin to include the health and stability of its relationships, its community, and the ecology it inhabits. With our innovations, we dream of aiding the transition of industry into a more holistic, responsible version of itself. Our partnership with Pal Fashions is a promising step in this direction.



Tushar Punyapreddiwar

The Inside Scoop

Stories and lessons from our growing team of passionate professionals

Tushar Punyapreddiwar on the Standardisation of the Biomass Industry

Tushar Punyapreddiwar is a Business Development Manager at BiofuelCircle. He is an expert in enterprise resource planning, customer relationship management, and cloud telephony with years of experience in IT and agricultural solutions. Tushar handles our industrial and enterprise sales in Tamil Nadu.

What attracted you to work with a company like BiofuelCircle?

I like to work with companies where I'm selling more than just a product. With BiofuelCircle, we are bringing something new to the market, selling a concept and a change, not just a product.

I see BiofuelCircle is creating a revolution in the biomass industry. This is a one-stop solution for everything related to biomass and biofuels. Working in a start-up in a changing industry - things are volatile but very engaging. The bioenergy industry is growing rapidly with a huge push from the central government and greater interest from big companies. So this is definitely an exciting place to be.

What will facilitate this rapid and widespread development of the bioenergy industry?

Okay, so think about when you buy petrol, you can be assured of a certain quality and price. There is predictability of price and standardisation of quality within the product.

But with biofuel, there is no standardisation at all. In the case of biomass, since it is agricultural waste, creating fixed standards is

already a challenge. There is no one particular type of residue required for briquettes. Every state and every region grows different crops and has a different type of residue that is used for briquettes. This means the GCV (Gross Calorific Value) and quality of briquettes vary a lot and so standardisation is challenging.

On top of this, there is no benchmarking in the industry, no price control framework or defined quality standards. As a result, the prices of briquettes are entirely dependent on fluctuating demand and supply.

This is where BiofuelCircle comes into the picture. Biofuelcircle is enabling an organised way of doing business.

With the platform, the prices of briquettes will not be dependent only on demand and supply at a particular point in time. Quality is another factor which will define the price, as it should. We are trying to define briquette quality standards based on their calorific value, ash content, and moisture. We can then determine what are premium quality briquettes and standard quality ones.

So with the platform, quality will start to define the price of the briquettes, thereby providing some standardisation and stability to the market. This will greatly boost the growth of the industry.

How else will a digital platform bring stability to the industry?

A common issue that comes from fluctuating prices and a lack of standardisation is that briquette sellers may not abide by their commitments. For instance, say a company raises a P.O. for 100 metric tonnes at a certain price. The seller agrees to this and starts to deliver the briquettes. Halfway through, he is offered a higher price for his briquettes from another company. What happens is that the seller will divert his briquettes to the new company and leave the first company hanging. As a result, many buyers do not have consistent, reliable sellers. The same issue can happen from the buyers' end also. If I'm buying at a certain price today and, tomorrow if I get briquettes at a lower price, I will switch vendors.

The platform will solve these kinds of issues through its verification services. Before being onboarded, each seller goes through a thorough process of scrutiny after which we find that sellers and buyers stick to their commitments. The platform also holds a record of all transactions and a profile of every user which creates accountability.

What are your responsibilities at BiofuelCircle? What does your work involve?

I joined the company as a business development manager; I take care of industrial and enterprise sales. When I say industrial sales, that's both on the supply side and the demand side; I work with briquette manufacturers and also consumer companies. We try to increase the availability of briquettes while simultaneously making sure they are readily available for supply. In addition to generating new sales, I try to keep our existing customers active on the platform through rapport-building activities so that they can benefit from new opportunities as they arise.

My work is rewarding because it is not at all monotonous. The way you talk to every supplier and every buyer is different because each entity has unique circumstances and needs. This keeps me constantly engaged and challenged.



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-Tushar Punyapreddiwar

NTPC Start-up Grand Challenge Winner



BiofuelCircle

For Creating a Digital Biomass Market

NTPC conferred us with the winning title for the NTPC Start-up Challenge (2022). Through this challenge, NTPC sought to identify a start-up company with whom it can collaborate to fulfill the co-firing biomass in its thermal power plants. In the pilot project, NTPC will work with two power plants to create a farm-to-furnace ecosystem.

This recognition is a huge boost to our morales and furthers our endeavour to create an organized and reliable supply chain for biomass.

