

# Industry Outlook

BIOFUEL PLANT &  
EQUIPMENT MANUFACTURERS

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Sandeep Narayan Chichbankar,  
Founder & MD

## COVALENT

*Serving Humanity &  
Nation with Green  
Sustainable Technologies*

₹150





# COVER STORY



**COVALENT focuses on providing client specific solutions with a focus on sustainability, modernization, and customization for the Biofuels, Distillery, and Renewable Energy sectors**

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# COVALENT

## Serving Humanity & Nation with Green Sustainable Technologies

**R**apid denudation of nature and the complete ecosystem by the humans since last century have caused havoc and been the major contributing factor for large environmental imbalances, we have been experiencing for quite some time. The endless appetite for fuel by automobiles all over the world has resulted into colossal depletion of precious mineral resources and pushing fossil fuels on the brink of extinction. The need for safe, sustainable, and clean energy is not just imperative but also immediate.

The only solution to this menacing problem is the mandatory use of biofuels by automobiles and developing new feedstock for biofuel production. Government of India has already recognized the necessity of Green Sustainable Technologies and introduced several initiatives for increasing bioethanol production, developed through various biofuel technologies. Ethanol is poised to witness a significant growth in the biofuel industry as a result of its widespread usage in automobiles. Furthermore, the huge potential of ethanol has spurred new project proponents to venture into the industry and also explore other feedstocks than sugarcane and grain. The push for biofuel has been a watershed moment for rural economy providing great fillip to the farmers and generating opportunities in rural India.



## Leading the way

For the last two decades Sandeep Narayan Chichbankar, Founder & MD of Covalent Projects & Engineering has been relentlessly working towards ultimate goal of developing contemporary yet sustainable technological solutions for biofuel industry. Highly critical areas distilleries, energy conservation, effluent management & disposal, value added products, and 'waste to energy' are the main focus areas and his persistent efforts produced spectacular results in increasing biofuel yield, drastic reduction in cost of production, and most importantly reduction in effluent discharge. Now, he has taken a step towards advanced biofuels, circular economy, and value maximization.

## The realization about the necessity of sustainable energies happened during his early days of upbringing. His inclination towards spirituality at a very young age developed his awareness towards the environment and led to the realization that, as an element of this universe his true dharma is to serve and keep serving selflessly to each element of this universe

Sandeep's work in Biofuel technologies for the last two decades has been recognized and awarded by most of the organizations & institutes across the globe and he is a renowned name in the field of distillery, biofuels, chemical process engineering, and environment-friendly technologies. He serves as Managing Director at COVALENT, and Ambassador & Advisor at Green Crude Biofuel Foundation. He also serves as a guest lecturer and technology speaker at various institutes and industry platforms.

Green Crude Biofuel Foundation is promoted by Honourable Nitin Gadkari, Minister for Road Transport & Highways, Government of India. The main agenda of Green Crude Biofuel Foundation is to explore advanced sustainable technologies for biofuels, energy self-sufficiency for the nation, reduction in use of fossil fuels, reduction in crude oil import, opportunity generation in rural India and truly making a Atmanirbhar Bharat.

## Proven Track Record & Reliability

COVALENT has always been committed to sustainability, focusing on environmental conservation through significant waste reduction. COVALENT is inventing process plant designs and deploying technology to minimize energy consumption, reduce effluent output, and boost efficiency through its in-house 'Co-gnize Technology'. It has created various technical solutions and technologies that are creative, cost-effective, and energy efficient for Feedstock Handling, Fermentation, Multi-Pressure Distillation, Ethanol Dehydration, Evaporation, Drying, Cellulosic Ethanol, BioCNG, Biodiesel, and Zero Effluent Discharge Systems. All this is aimed at ensuring the most efficient use of water and other energy resources. The plant designs, which are based on such enhanced procedures, ensure that the facility runs smoothly and safely.

"We offer maximum efficiency in the manufacture of high purity Biofuels with the lowest energy input, highest yield, 100 percent recycling, and practical zero liquid effluent discharge thanks to our unique 'Co-gnize Technology.' COVALENT has been aiding its clients to establish efficient, low-energy, zero-pollution facilities that can be operated with advanced automated systems. Further, this technology is flexible enough to accommodate specific quality requirements, schedule and cost", highlights Sandeep, Founder & MD at COVALENT.

COVALENT focuses on providing client specific solutions with a focus on sustainability, modernization, and customization for the Biofuels, Distillery, and Renewable Energy sectors. COVALENT has carved a niche for itself as a leading Technology and EPC company to bring enormous value additions in Biofuel, its derivatives, and other bio-mass powered processes/operations in a very short period of time.

## Strong Infrastructure & Capability

COVALENT has developed strong capabilities via continual design and engineering improvement, employing latest design and engineering tools. It has established an excellent design & engineering infrastructure, covering the entire spectrum of engineering right from process, chemical, mechanical, civil & structural, electrical & instrumentation, to piping. With a thoughtfully engineered layout, the facility is fully equipped



with modern facilities for manufacturing and product development of highly critical process equipment of any dimensions in accordance with all International Design Codes such as TEMA, ASME, SIS, DIN, API, SSPC, IIS, among others.

Furthermore, COVALENT relies on highly equipped manufacturing facilities to supply equipment that meets the most demanding international standards and norms. With vastly improved procurement, logistics, and installation competencies over the years, COVALENT possesses unparalleled capabilities in undertaking and completing integrated turnkey solutions with green technology for diverse markets including Ethanol, Biofuel, Oil & Gas, and Pharmaceuticals.

COVALENT is backed by its technically adept team of seasoned professionals who are empowered with the latest design tools. The design and engineering team comprises well-educated specialists who have been carefully chosen from reputable institutes in India to cover the complete spectrum of engineering.

## **Max Ethanol Platform**

Considering need of the hour, COVALENT took initiative and recently embedded digital engineering solutions to facilitate a greater collaborative effort through knowledge sharing relating to latest technologies, process parameters, product configurations and plant operations, among other things. Thereby providing the industry a broader array of decision-making tools. Max Ethanol provides digital solutions and performs as a common platform for maximization of ethanol to effectively achieve ethanol Blending targets for the nation.

## **'Co-gnize' Innovation Centre**

COVALENT has recently established a state-of-the-art R&D facility named 'Co-gnize' Innovation Centre. Scholars, scientists, and technocrats work relentlessly to develop futuristic technologies in the field of biofuels. This innovation centre will also provide a platform for budding talents. COVALENT's proprietary 'Co-gnize Technology', offers maximum efficiency in production of high purity Biofuels with lowest energy input, highest yield, total recycle, and practical zero liquid effluent discharge. Co-gnize ensures setting up of efficient, minimum input energy, and zero pollution projects with sophisticated automation. Further, 'Co-gnize Technology' is flexible enough to accommodate specific product quality requirement, project schedule, and cost.

COVALENT's 'Co-gnize Technology' aims at serving the industry with benefits such as, complete feedstock preparation solutions covering concept to commissioning, high recovery, and minimum creation of waste, substantial reduction in energy cost, contemporary Instrumentation & Controls for ease of operation in complex system, minimum human intervention through remote monitoring & control

system, seamless coordination, and prompt technical support to operating plants. R&D efforts concentrate on conceiving innovative environment sensitive processes, which will conserve natural habitat and resources, prevent biophysical degradation of natural environment and wherever possible repair the damage & reverse trends.

The technologies developed at COVALENT have been constantly analyzing Biofuel metrics for better understanding and evaluating biofuel systems, in the light of land use efficiency, net lifecycle energy balance, net lifecycle greenhouse gas balance, economics, and technology relevance. With its main focus on protection of environment through substantial reduction in waste, continuous improvements by way of optimal usage of water, and other energy resources has been the hallmark of 'Co-gnize Technology'. The plant designs, based on such improved processes, guarantee seamless plant operation, efficiency, and safety.

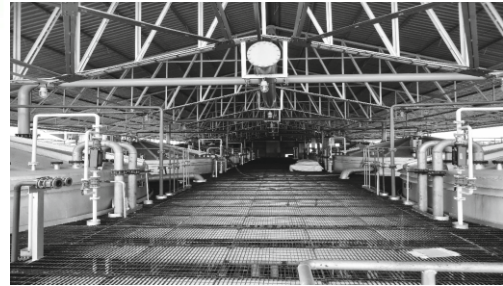
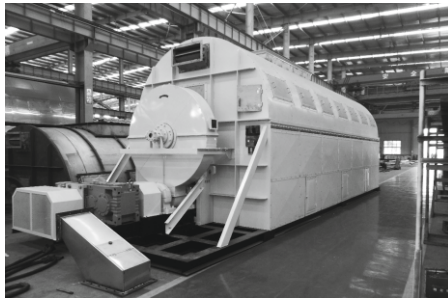
"Research in advanced biofuels and ethanol derivatives will play a very important role in supporting first generation biofuels in future due to limited feedstock options. The main focus is 'Circular Economy' wherein the systems offered are restorative or regenerative by intention and design. The main endeavor is to replace the end-of-life concept with proper restoration, reduction in waste, and re-utilization of all resources", says Sandeep.

COVALENT offers patented technologies to maximize profitability in sugar, ethanol, and advanced biofuels.

## **COVALENT Ethos**

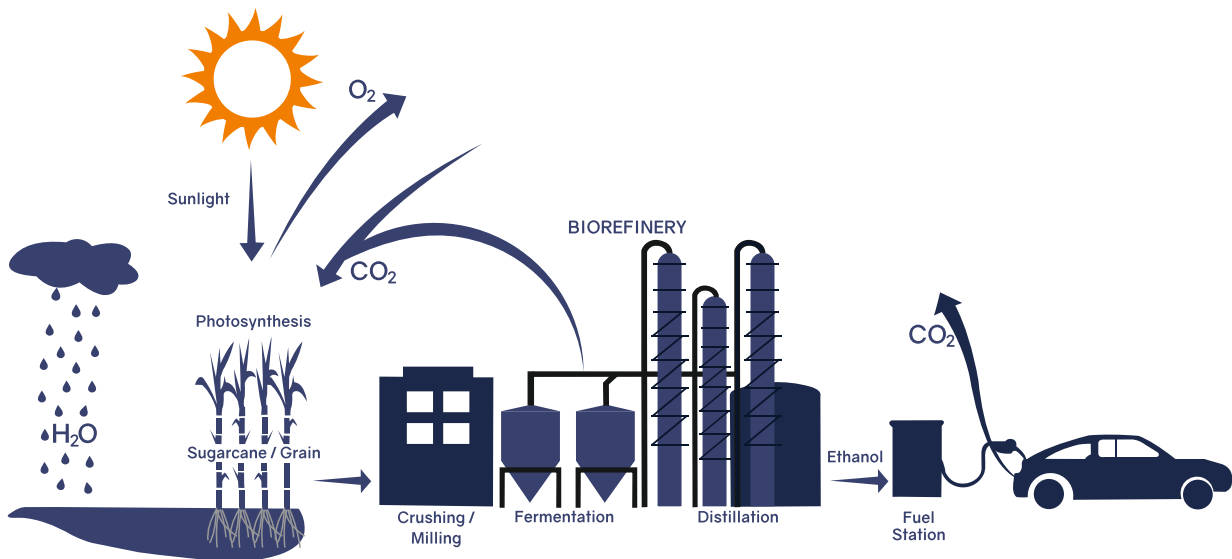
COVALENT is known in the industry as a trustworthy company with highest regards for ethics, professionalism, quality, commitment, and respect. It has been serving humanity and the nation by developing future-ready green sustainable technologies. Currently, COVALENT has been rapidly increasing its R&D operations to encourage innovations by supplying high-end technological solutions for the distillery and biofuel industry. For this, the company has already established modern distillery and biofuel projects which will facilitate optimal energy usage, eco-friendly practices, quality product development, proper liquid & solid waste handling and management. COVALENT has and always will conform to the highest design, engineering, and safety standards.

"We believe in adhering to our strict principles of unwavering devotion to deliverables, honesty & openness, and service to society. This is the driving force behind our efforts to improve, continuously achieve excellence, follow the most ethical corporate standards, and uphold our social duties. COVALENT understands the value of ethics and aspires to be known as a reliable organization that values professionalism, dedication, and respect. Our dharma is to keep serving selflessly to each element of this universe and COVALENT is manifestation of my Dharma", says Sandeep. [li](#)



# BIOFUELS DISTILLERY TECHNOLOGY SOLUTIONS





## Covalent's Vision & Mission

- Ethanol and Biofuels For Atmanirbhar Bharat
- Reduction in Use of Fossil Fuels & Crude Oil Import
- Developing Green & Sustainable Technologies
- Opportunity Generation For Rural India
- Energy Self Sufficiency For The Nation
- Generating Employment Avenues
- Circular Economy



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IS PROUD TO PRESENT

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TOP 10

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2022

*in acknowledgement of its unwavering focus and dedication  
to achieve excellence in quality and delivery in this field.*

*Sudhakar Singh*

Sudhakar Singh  
Managing Editor  
Industry Outlook