SERIGAS™ TECHNOLOGY

Wasted Mass to Clean Energy

info@esclare.org

Energy from Waste

Not only in times of increasing urbanisation and population or of the growing industrialisation of countries becomes waste treatment more and more demanding. Each year thousands of acres of land are lost to landfills. The methane produced from decomposing waste is a potent greenhouse gas. And the costs associated with using a landfill are rising as cities and countries truck their waste ever farther away.

Reasons like these, and others, are causing municipalities to re-evaluate the benefits of waste to energy facilities.

Additionally, more and more governments establish subsidiaries for an ecological friendly waste treatment.
Waste to Energy is often viewed as primarily a waste management solution rather than a valuable energy resource. Consequently, its full potential has not been realised.

Waste to Energy plants across the world follow the conventional biomethanation process which is still highly cost intensive, subject to frequent breakdowns and bacteria washouts.
An efficient and reliable technology is the key to harnessing energy from waste and provides many benefits.

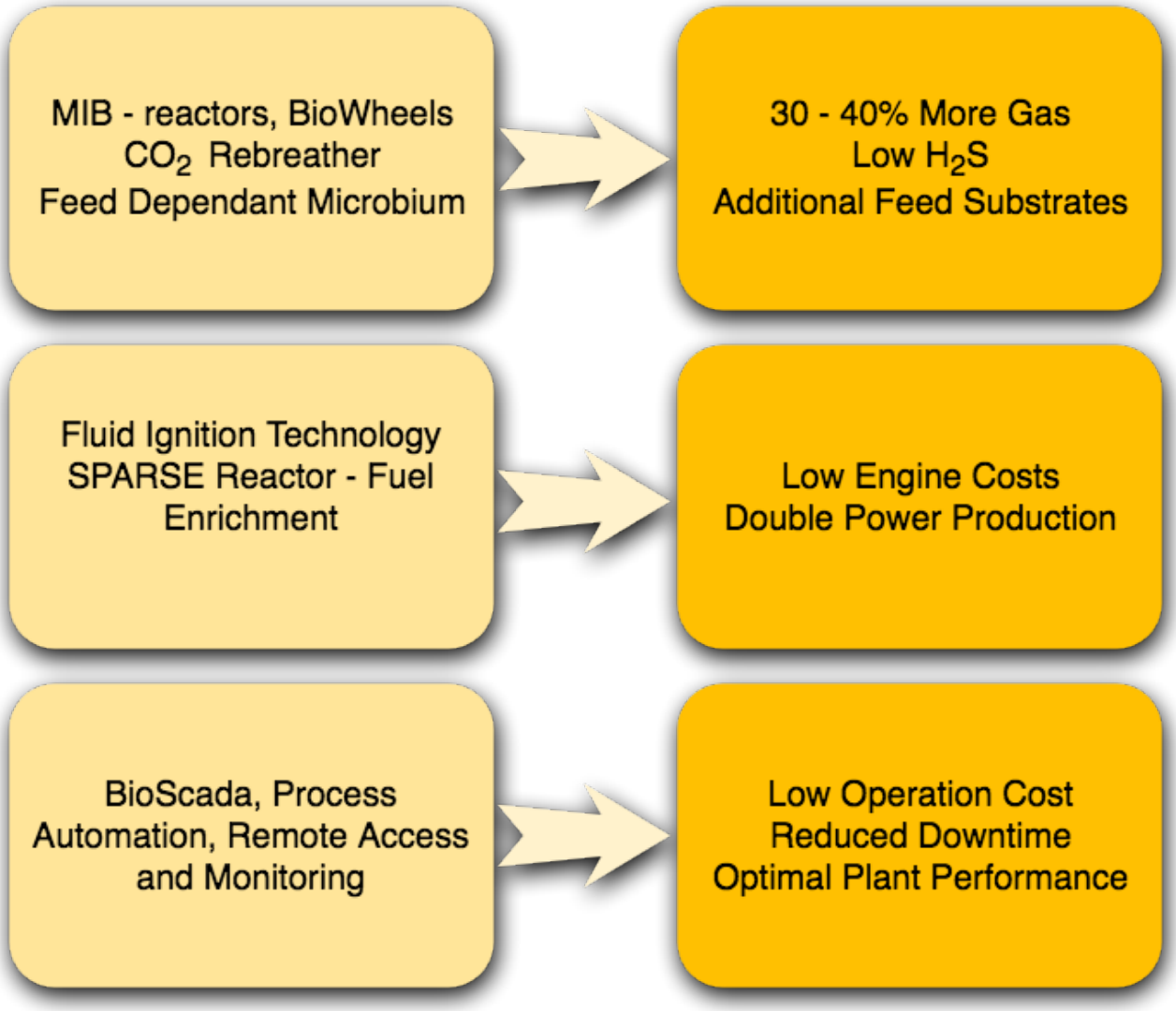
SERIGAS™ Technology

The first of it's kind in the World, and the result of over 8 years of R&D. It has been designed to process any organic feedstock including food waste, non consumable parts of fruits, vegetables and other agricultural waste, municipal solid waste, oil effluents, parts of non consumable meat and fish, excreta of humans and animals, weeds such as water hyacinth, water lettuce parthenium, etc that clog our water bodies or cause allergies, rot when they die, pushing tons of harmful substances into the environment.
Serigas™ Technology is a highly controlled biological reaction comprising the use of specifically and finely cultured microbial ecosystem for aerobic and anaerobic digestion of organic feedstock. It is a multi stage, variable hydraulic retention, microbe incubated bio reaction system. The process aids in production of high purity combustible gas in quantities exceeding 30 - 60% more than the currently used techniques.
The design of the system is fully modular with scope for expansion and the plant can be built with small footprint. The cost of such a plant is substantially lower and affordable; outcomes are encouraging and gives you a sense of saving the planet.

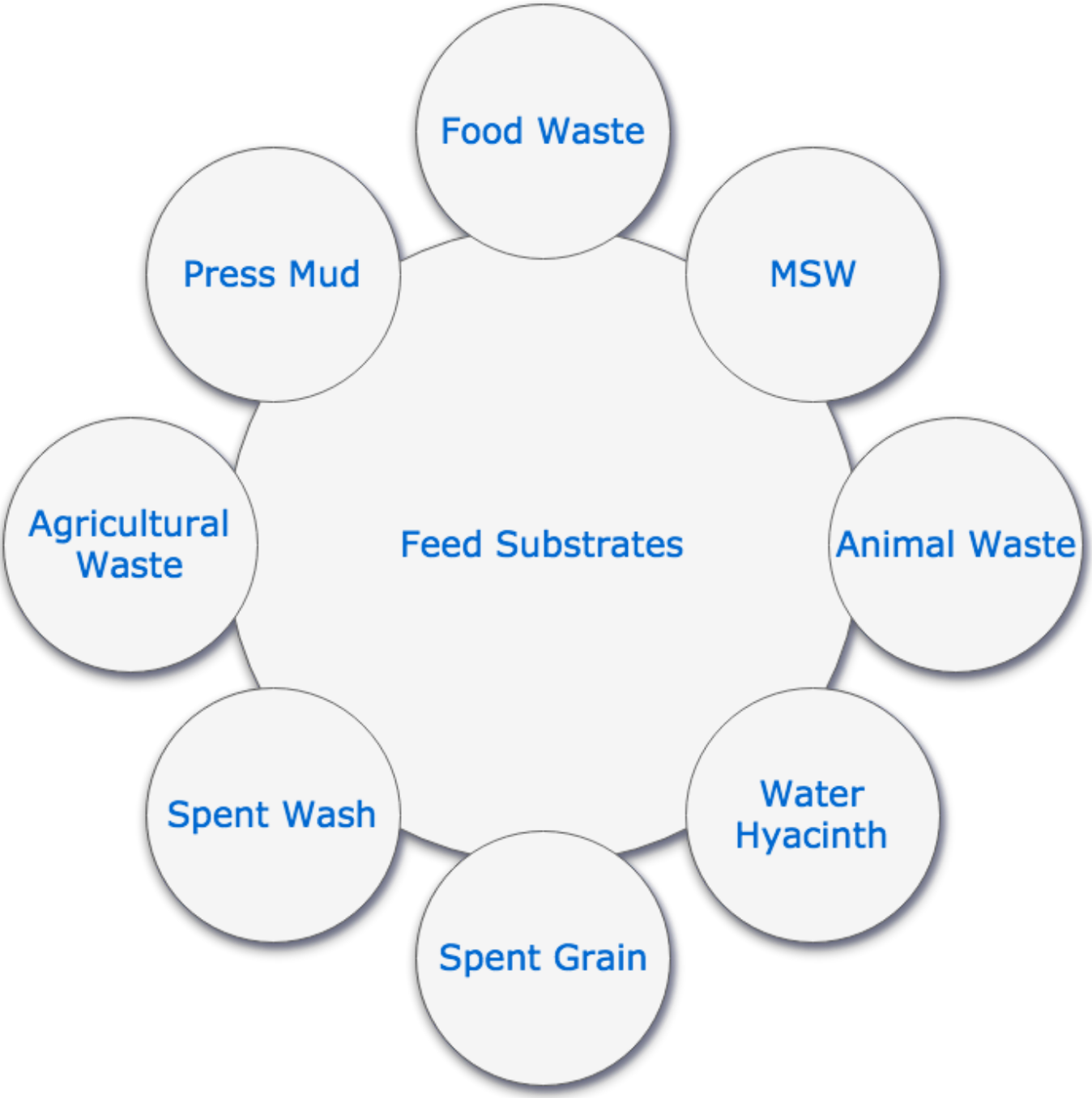
The output gas is named as SERIGAS™. It has similar properties as that of Natural Gas without the undesirable impurities like Butane, Propane, Pentane, etc.
SERIGAS is combustible, has many applications and have the following properties:

Particulars	Unit	Value
Calorific Value	MJ/M^3	36.19
Density	Kg/m^3	0.84
Wobble Index	MJ/M^3	40.00
Max. Ignition Velocity	M/sec	0.398
Combustion Air Requirement	M^3 air/ M^3 gas	9.60
Max. CO_2 in Stack Gas	Vol %	9.9
Ignition Temperature	^0C	648.89
Flammability Limits	% Gas to % Air	5 to15
Buoyant Temperature	^0C	-71
Dew Point	^0C	58.65
Toxicity		Non Toxic
Corrosion		Non corrosive
Ground Water Contamination		None

SERI Innovations



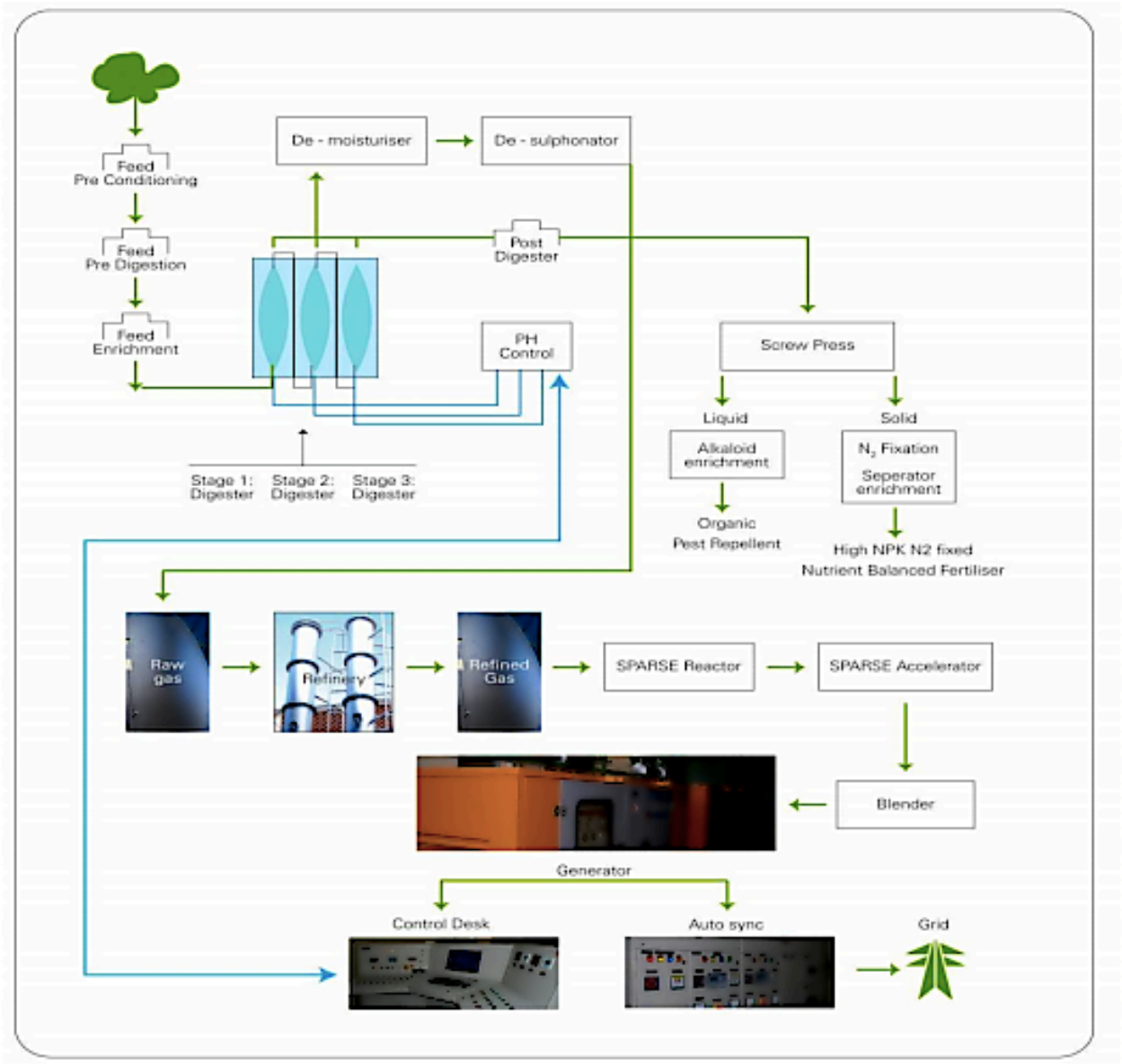
Feed Substrates



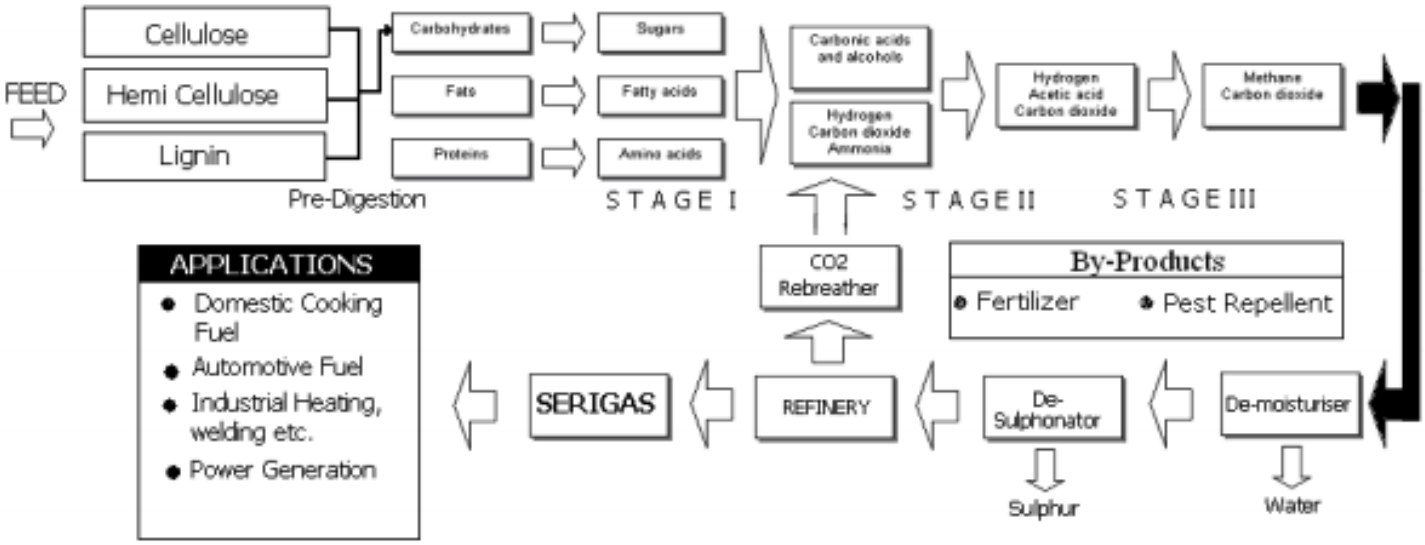
Composition of SERIGAS™

GAS	Formula	Percentage V/V
Methane	CH_4	98
Carbon Dioxide	CO_2	1
Nitrogen	N_2	0.06
Hydrogen	H_2	0.7
Hydrogen Sulphide	H_2S	0.003
Oxygen	O_2	0.23

The Process:

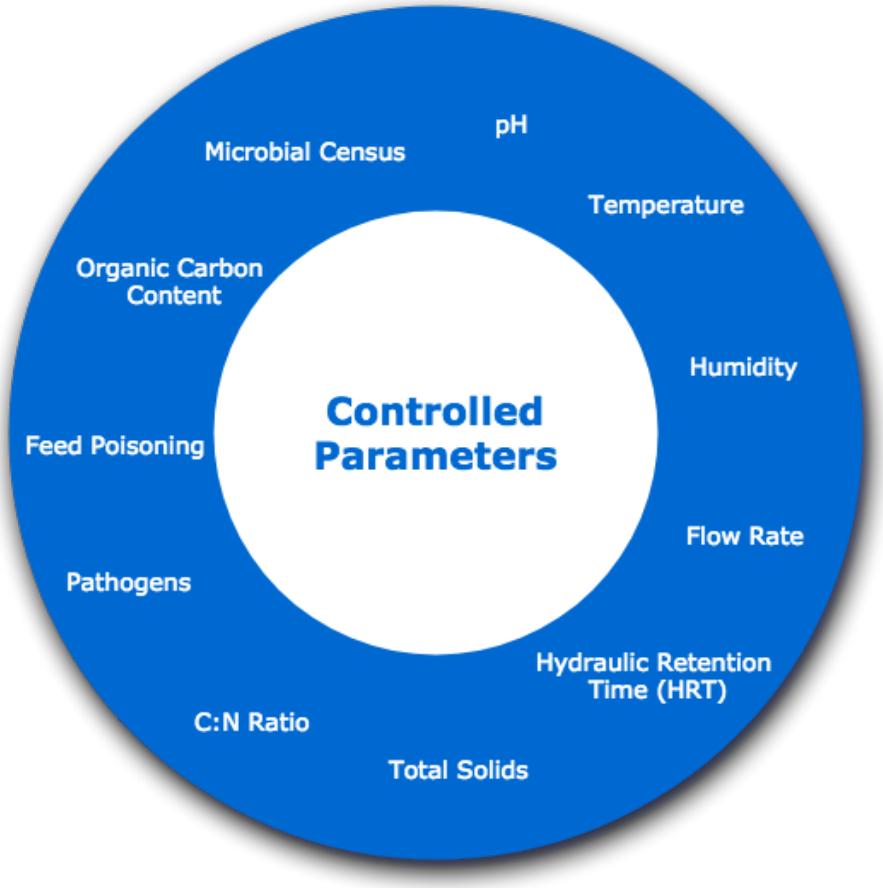


Process:



Parametric Controls:

Computerised controlling of key parameters is most important in the SERIGAS reaction process to maximise the performance of the plant. Except for providing the feed at the pre-digester, all process is human independent. The following parameters are monitored constantly with necessary corrective measures for each of them, if required.



The Plant:


SERI
SPARSE™
POWER STATION
GAS HOLDER-3
CENTRAL CONTROL DESK

Applications:

Domestic Cooking Fuel:

NPMC Domestic Cylinders

Domestic Piped Biothane Gas (PONG)

Automotive Fuel:

Power Generation:

Industrial Applications:

Waste Treatment, Incineration, Heating, Drying and Dehumidification, Glass Melting, Food Processing and feeling Industrial Boilers. SERIGAS may also be used as a feedstock for the manufacturing of a number of chemicals and products.

Project Portfolio:

Sl No	Client	Capacity/ Feed	Output	Status
1	KBDL (UB Group), Bengaluru, India	30 ton per day/ Brewery spent grain	Electricity	Operational from last three years
2	Boon firms, Netherlands.	25 ton per day/ Cow manure.	Gas for Automobile, electricity & heating	Operational from last 2 years
3	Bombay Burmah Trading Corporation, Karnataka, India.	125 ton per day/ coffee fruit skin	Heating and power generation	Operational from 2014
4	Volvo India Limited, Bengaluru.	500 Kg per day/ Food & Kitchen waste	Gas for heating and cooking	Operational from 2014
5	Komarla Hatcheries, Bengaluru.	500 Kg per day/ chicken litter	Gas for heating	Operational from 2013
6	Dharan Municipal Corporation, Nepal. (World Bank Project)	50 ton per day/ Municipal Solid Waste	Gas for transportation & cooking	Project delivery January 2019

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106, Arihant Avenue, Wanowrie, Pune - 411040, Maharashtra, India
info@esclare.org
Contact: 0888 808 5550