

# ***PAK-ENERGY SOLUTION***

+92 346 4119746 | contact@pakenergysolution.com | www.pakenergysolution.com

**Address:** F-7, Aiwan-e-Mashriq Plaza, Montgomery Road, Lahore, Pakistan



## ***Natural Gas Digester***

### **TEAM**

Ali Raza	CEO	+92 346 4119746	ali_raza_razaa@yahoo.com
Matloob Ahmed	Dir. R&D	+92 333 7495647	matloob26_cr@yahoo.com
Imtiaz Akbar	CTO	+92 334 9883898	imtiazakbar124@yahoo.com
Mubasher Nazir	CFO	+92 333 4824064	mubasher21@gmail.com
Shehroze Wasif	CMO/COO	+92 323 4277286	shehrozewasif@hotmail.com

## Executive Summary

Energy is the major contributing factor in raising the standard of living. We, who have access to gas and electricity, can not imagine the world of those without it. Sadly, right now Pakistan faces a huge energy crisis. There are hundreds of villages whose inhabitants have only dreamt of watching their villages lit up with energy. Thousands of villages in rural areas get the power to light their houses and make their food for not more than 2 hours a day. Villagers are using wood and dung cakes for their heating needs. It emits intensive smoke into the environment and causes health issues of lungs (asthma) and eyes into the locals especially into women & infants. The prices of fertilizer have been intensively uplifted, ultimately becoming a cause of damage to the quality of food. The world has already started to move towards alternate means of energy to save depleting natural reserves of gas, oil and coal but Pakistan lacks far behind.

In response, we are introducing an eco-friendly and affordable Natural Gas Digester which is a futuristic & automated version of biogas technology. It consumes 32 kg of cow dung and 2 kg of kitchen waste each day and generates clean gas for cooking, heating and lighting. Moreover, it delivers 32 kg of bio fertilizer in one day and provides additional entrepreneurial opportunities for the people at the base of the pyramid to sell it to the local farmers. A total of 11.7 tons of bio fertilizer each year has the worth of 6400 USD for 1 rural family. Biogas is one of major green energies that is appropriate, renewable and sustainable while having least adverse effect on this world. Biogas typically refers to a gas produced by the biological breakdown of organic matter in the absence of oxygen. Organic waste such as dead plants, animal manure and kitchen waste can be converted into a bio-fuel called biogas and bio-fertilizer.



Our product is specially designed for individual rural families but slowly we plan to spread into rural communities. 70% of the rural population has an easy access to cow dung and kitchen waste. Hence 16 million rural families in Pakistan are our target customers. It translates into a huge market opportunity. A very important point is how do we plan to reach our market? Most of the market is uneducated in rural areas. So we will meet with the representatives of the local community and arrange informal seminars for educating them with the benefits of the product and distribute our brochures. This will have to be done in the local language of the village for easy understanding of the inhabitants. Later on, we shall install a model biogas plant in order to demonstrate the practicality of the product for changing the mindsets. This will eventually increase the demand of our product.

We are planning to make a contract with a manufacturing company for product production. A legal ToR (Terms of Reference) will be signed to protect our intellectual property (IP). It is a good idea for us to remain small but financially viable. Our business model begins in making a contract with a manufacturing & supplier companies who will deliver our units to the company's warehouse and to the end user. The company outlets will be introduced in each district to provide installation and after sales

services. So that is how revenues will be generated. We have chosen direct selling approach to install the product (B2C Model) in order to receive valued feedback of customers.

It is noteworthy that there are 7 million biogas digesters working in China, 5 million in India and 123000 in a small country like Nepal. But there are only 5400 biogas plants in Pakistan which are inefficient due to the lack of research & development, leakage of gas and after sales services. There are a few biogas companies but we plan to kill the competition with our sustainable and long life technology. This product is a combination of Indian & Chinese models which makes it a hybrid biogas plant. It has microcontroller intelligence system with heating coils which makes it 40% more efficient than the existing technologies. This product has the minimum life of 25 years which is way more than the 1 to 2 years life span of the traditional biogas plants in Pakistan. There are other alternates available in the market as well. LPG is sold for \$ 25/month while wood is costing \$ 15 a month which is a well known environment hazard. The market price for chemical fertilizer is \$ 666 a ton and organic fertilizer is sold for \$ 555 per ton. We out-compete these expensive solutions by not only providing gas for free but also give an additional benefit to a rural family with 11.7 tons of bio fertilizer each year which has the worth of \$ 6400. We also plan to slide down the demand curve with a 50 % discount deal to NGOs to sell a domestic biogas unit for 275 dollars.

Socially we can see that this business plan, especially for the Pakistanis would do wonders. 16 million rural families face an energy crisis. This plan caters to the needs of each and every one of them. Their lives could experience a tumultuous change. Not only does this make them live their lives easily but opens up a number of entrepreneurial opportunities for the people at the base of the pyramid in a completely new field with the provision of bio fertilizer. It will help in alleviating poverty and sustainable rural development. On average, a biogas plant reduces the workload on 2 women in each family who consume their time 2 hours a day for making dung cakes and collecting woods for their heating needs. It emits a smokeless, odorless and non-offensive gas. So, lungs and eye diseases are prevented. Hence, we can see there would be no hazardous effects on the inhabitants who install this or would be living close by. On average, a domestic biogas unit can save 525 m<sup>3</sup> of natural gas, 3154 kg of wood and 144 kg of LPG in one year which helps in saving natural resources. This technology completes green cycle (Ecosystem). The animal waste is processed into the digester which generates gas for heating & fertilizer for agriculture. Hence CO<sub>2</sub> into the environment is captured back by crops grown from bio fertilizer which results in the reduction of global warming. It also reduces solid waste with its 3R model of reduce, reuse & recycle.

We need a grant of 30000 dollars to complete R&D, pilot testing and patent. The following table clearly elaborates our 4 year growth plan and financial returns. It includes all the costs i.e. production, selling & admin, sales and logistics etc. Government of Pakistan surcharges zero tax for environment-friendly and cost-effective energy solutions and has funds to encourage such investors/developers who contribute in energy crises elimination, agricultural development and solid waste management. China & India provides 40-60 % subsidy and international organizations (UNESCO & UNIDO) offers special grants to foster such projects.

	Year 1 U.S. Dollars	Year 2 U.S. Dollars	Year 3 U.S. Dollars	Year 4 U.S. Dollars
Total Revenues	55,000	550,000	5.50 million	16.50 million
Gross Profit	25,000	325,000	3.60 million	11.50 million
Net Profit	14,500	295,000	3.40 million	10.55 million
Investment Needed	30,000	225,000	1.90 million	5.000 million
ROI	48 %	130 %	178 %	211 %
GP Margin	45 %	59 %	65 %	69 %
Net Profit Margin	26 %	53 %	61 %	64 %
Units Sold	100	1000	10,000	30,000
Breakeven Volume	70	430	3600	9600
Breakeven Time	~ 6 months	~ 6 months	~ 7 months	~ 7 months
Payback Period	12 months	12 months	12 months	12 months

We are a diversified team of engineers & entrepreneurs from 3 universities of Pakistan. Our technical team has 2 years of field experience in Biogas, Chemical & Electrical Engineering and has earned 3 gold medals for developing & implementing best research practices. Our business team has expertise in Marketing, Operations, Finance and Management. They have launched Biogas Awareness Campaign in the 10 districts of Punjab with the partnership of Environment Protection Department. Furthermore, we have a strong advisory board including the Heads of Chemical, Electrical and Business units of University of Engineering & Technology Lahore. Hence we have a perfect combination to become a high growth company. Our team of engineers has taken a first mover advantage for successfully installing 3 pilot projects around Lahore. Chief Minister of Punjab and Lahore Chamber of Commerce & Industry have recognized the potential long-term benefits of this project in national interest and awarded us 1<sup>st</sup> prize in Regional Entrepreneurial Challenge. Later on, it was an honor for us to be invited by Prime Minister of Turkey and U.S. Vice President in Global Entrepreneurship Summit 2011.

A risk associated with the implementation of the idea is the community hesitation. We need to educate the villagers about the usage of the product. For that we may have one of the villagers be the representative for that area so he could bring any issues to us. Another associated risk is early imitation of our product which can be mitigated by patent. This project is flexible in its scope and size. Even winding-up is simple! Shares can be floated into the public (IPO) to compensate the losses (if any). Merger/Strategic Alliance with a biogas giant (Tianren Envi Co. Ltd.) is not out of question.

Hence we look forward to become a national leading company of Pakistan providing low cost biogas plants to eliminate current energy and agriculture crises within next 5 years and to launch it worldwide while developing partnerships & joint ventures with global companies. It would ultimately contribute towards sustainable economy of Pakistan as well as mankind. "Green & Independent Pakistan" will not just be a dream, but soon it will become a reality.