



Xavier Maurance
Founder - CEO, PyroGreen

Ultimate Waste to Energy

PyroGreen is positioned as franchisor of a unique process developed in an industrial demonstrator. Final result: Zero waste, zero discharge. A real answer to environmental challenges. Xavier Maurance talks to bizbahrain.

Can you tell us what the concept of PyroGreen is all about?

PyroGreen Innovations holds a highly efficient production process in valuation of ultimate waste (hazardous or not).

It ensures the recovery of non-ferrous metals found in the final waste while producing a material with applications similar to sand (filtration, abrasive, aggregate).

It produces heat which can be turned into electricity, synthesis gas, steam ... (The latter can be used for multi-stage sea water desalination.)

Thanks to this unique and revolutionary process, PyroGreen Innovations delivers superior environmental sustainability:

Waste to Energy or Waste to Pure water. Final result: zero waste, zero discharge.

PyroGreen Innovations is the real answer to environmental challenges: no more saturated landfills, storage of toxic wastes or dirty incinerators.

How? Here no magic, only chemistry

Vitro gasifying is a process based on the structure molecular disorder of amorphous glass. The vitrified glass acts as a sponge permanently trapping pollutants and toxics by eradicating their dangerous potential.

With PyroGreen's process, we deliver results on sustainable development as:

- Complete conversion of waste into renewable energy
- Preservation of natural resources
- Permanent local employment
- Odourless production
- No toxic residues but a valuable by-product
- Definitely, zero waste

How did the idea come about? Who is behind the concept?

Fundamental research began in 1995, following an idea of Jacques Proot (world expert in metallurgy of non-ferrous) who observed the ability of a glass furnace to digest several types of waste. 5 years later, the first patent on a pyro-gasification process was filed.

Then a pilot was built to validate the technology; it worked from the years 2001 to 2008, validating a TRL 7 (Technology Readiness Level).

The scientific team continued its work to broaden the choice of possible hazardous wastes. In 2014, a second patent for asbestos and fibrous waste was filed. In 2015, the third patent covers characteristics of the installation and exchangers. Now we have to build the first unit at the industrial size as proof of concept. We have two opportunities in France, but we can do it as well in Bahrain, which has the advantage of being a dynamic economy, open to technological innovations and in high demand on environmental processes. As

an essential financial platform, Bahrain also offers the financial engineering necessary to the success of such a project

How do you expect to roll out a program that maximizes energy and material recovery?

The process responds perfectly to areas where waste landfills and the demand for energy or fresh water are important. This is the case for all islands.

Demonstrating the full power of the process on an island by simultaneously solving the various constraints constitutes our offer. We are entering the new technological age, and our first unit will be the technological showcase to meet the present and future needs of the regions. With Bahrain, we'll customize our solutions and our services so they so they fit the current needs of the territory.

How did the idea of Bahrain come up and what would be the added value for the Kingdom?

For the past few months and to scale up the development of PyroGreen, we have been working with the international consulting firm Velt Advisory. Velt was ideal to define our next strategy as: their presence in California and Europe makes them much attune with the most recent initiative in clean technologies and they have an amazing network the GCC region.

When Velt suggested the Kingdom of Bahrain as a foothold in the region to

raise funds, penetrate the market and facilitate agent relationships, it appeared to be the ideal strategic partner for our development. We would bring in our cutting-edge innovation to help the Kingdom transform into a hub for innovation and clean technology as well as a solution to identify a problem of the Kingdom that PyroGreen will help resolve. The high net worth investors and client that Velt introduced us to in the GCC region and more specifically in Bahrain comforted us in that belief.

What do you foresee the impact that this program will have on Bahrain's and GCC environment?

Bahrain generates up to 1.2 million tons of solid municipal wastes every year. The country is one of the highest per capita municipal solid waste generators worldwide with an estimate of waste to be near to 2 kg per person per day. Rising population, high waste generation growth rate, limited land availability and scarcity of waste disposal sites has made solid waste management a highly challenge for Bahrain's policy-makers, urban planners and municipalities. Let's observe that these wastes could generate 20 400 m3/hr (90,000 GPM) of pure water from desalination.

To this must be added hazardous waste: any solid, semi-solid or liquid matter that may lead to a hazard or potential hazard to public health, environment and wildlife because of their quantity, concentration, physical, chemical or biological properties when they are managed in an environmentally

improper manner. Bahrain is in a preparatory process to restrict the export of hazardous wastes. But for that, a great solution is needed;

- Health-care activities characterized by risk of infection
- Asbestos and fibrous
- Chemical wastes
- Oil refinery waste
- Waste oils

All these wastes are present on Bahrain and must be treated locally, in accordance with the local environmental policy.

The establishment of a unit will allow Bahrain to make a leap in terms of sustainable development, responding to future needs: removal of landfills, cessation of hazardous waste exports, sanitation (air, soil, sea). @

For further information: xaviermaurance@pyrogreeninnovations.com



Susan Velez
One of the Founder of Velt Advisory

Velt Advisory was founded by Susan Velez and Alexandre Katrangi.

As a global advisory firm with presence in California, USA and Paris, France it provides custom market entry advisory services in in key regions like the GCC, the Middle-East and Africa, coupled with extensive legal services such as alternative dispute relation, international litigation and arbitration as well as mergers and acquisitions through an exclusive partnership with Chouraqui Law Firm.

For further informations please visit: www.veltadvisory.com

Team PyroGreen with Ahmed Khalfan, Managing Partner and Publisher, Stratford Holding

