

## Case Study: Winner of the Innovation Award



Sponsored by:



Xanthella develops and manufactures photobioreactors that use innovative LED technology to produce microalgae and other photosynthetic cells. The cultivation systems are highly flexible and available in several sizes for different applications, from research lab work to industrial production.

The Innovation Award recognises businesses that have developed, innovative technologies, products, practices or services that bring environmental and business benefits. This category highlights the ability of businesses to encourage sustainable consumption, reduce environmental impacts and create new business opportunities.



Xanthella develops and produces algal bioreactors to operate with intermittent power supplies as microalgae are adapted to grow successfully given periods of both light and dark.

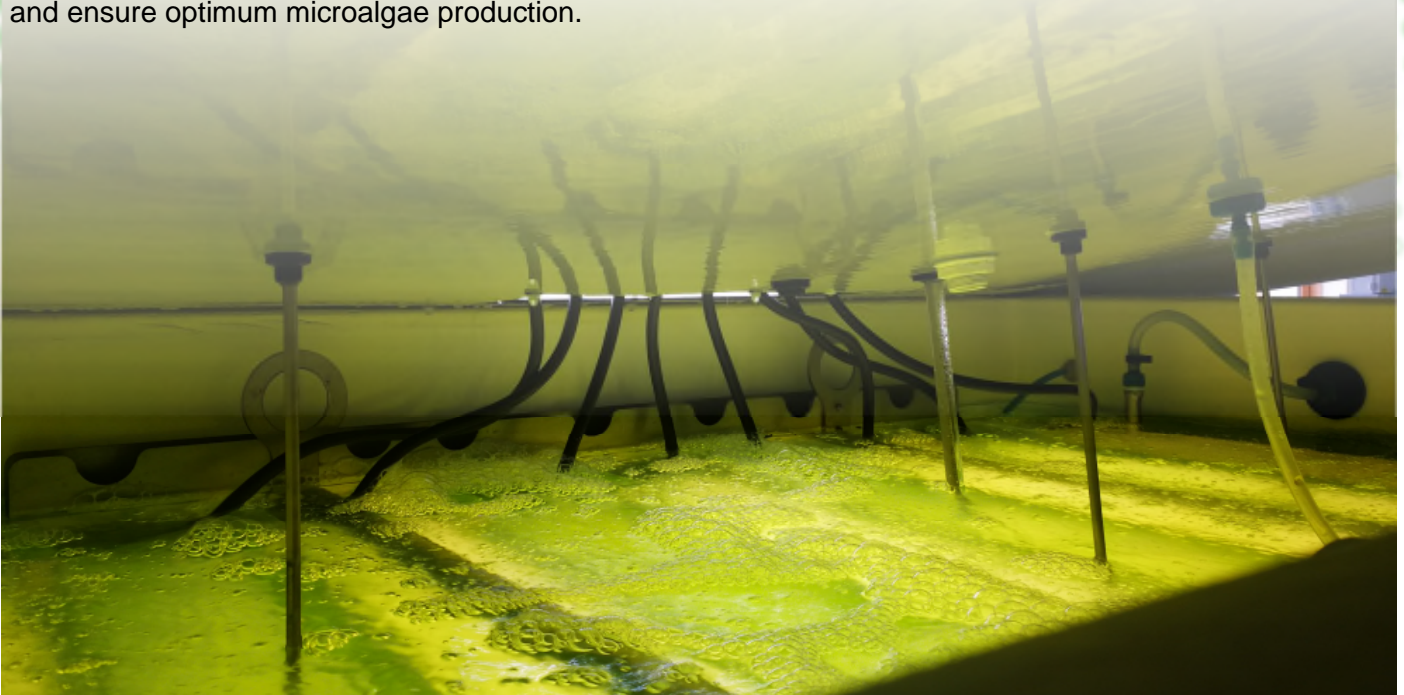
The product can be used in rural areas where there are problems with lack of connectivity to the national grid. The bioreactors can use the excess electricity. Their bioreactors can also use by-products of the distillery industry to produce valuable fish food for use in the aquaculture industry, linking two sectors that are predominantly based in rural areas.

### Highlights

- Develop and manufacture photobioreactors that can use excess, locally generated, renewable electricity
- Use innovative LED technology to produce microalgae
- Can be used in rural areas where there are problems with lack of connectivity to the national grid
- Have produced a bespoke control device (ZeusII™) which can monitor pH, nutrient levels, light levels and can adjust the light to ensure optimum microalgae production
- Can utilise distillery bi-products
- Can act as demand side management and grid balancing tool

The judges felt Xanthella has developed an innovative technology, which has the potential to provide economic benefits to rural areas, utilizing “excess” renewable energy and by doing so enabling more community based renewable energy projects to become viable in remote areas. They can also use “stranded resources” such as timber for combined heat and power plants in areas where extraction is too costly to make conventional timber operations viable.

Xanthella has produced a bespoke patented control device (ZeusII™) which can monitor pH, nutrient levels, light levels and can adjust the light intensity to suit the availability of energy from a variable source and ensure optimum microalgae production.



The development to scale up the bioreactors for industrial scale production has been done with collaboration from ALLenergy (a business registered as a charity that promotes community and local energy schemes across the southwest highlands and islands)

There are many potential uses for the microalgal products, for example in food supplements, food pigments, fish food pellets (high in omega 3).



The social benefit of these developments could see the establishment of valuable skilled workforce in rural areas where depopulation is an issue. The products are high value but low volume – minimizing transport costs and displacing expensive imports.

*We are proud to have been recognised at this year's VIBES – Scottish Environment Business Awards in the Innovation category. Collecting a VIBES Award is a real testament to the hard work and commitment from everyone at Xanthella and our partners. The Awards are a fantastic way to bring the ground breaking ASLEE – ENBIO project to a wider audience and an excellent opportunity to find out more about other like - minded Scottish businesses working to benefit the environment and inspire others.*

- Dr Douglas McKenzie, Chief Executive at Xanthella Ltd