

**MEDIA RELEASE  
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**For Immediate Release**



**ENESYS**

Ecologically Sustainable Technology

**Creating Visionary Circular Economies: from Waste to Energy to Growing.**

**Imagine being able to divert all our food waste away from landfill to create clean renewable energy but to also help us grow food sustainably?**

**Victorian company Enesys has been awarded a grant administered by Sustainability Victoria's Waste to Energy Infrastructure Fund to develop a business case for a fully sustainable commercial precinct. The project will demonstrate how commercial precincts and communities can create their own energy while growing local fresh, nutritious food, and recycling their waste.**

Australia has a waste problem. We spend more than \$10.1 billion on food that ends up in our bins or as landfill. What if we could divert this waste and use it to create clean energy?

Extracting energy from organic waste via a process called Anaerobic Digestion is not a new technology. However, unlike burning waste with incineration, Anaerobic Digestion is a natural process where bacteria break down organic matter and produce a gas that is 50–75% methane. This clean gas creates not only clean energy but heat, water, nutrients, and carbon dioxide.

### **Waste to Energy to Growing**

Enesys founder and engineer, John Norwood, has recognised that all the by-products of energy creation from waste are precisely what a plant needs to thrive: heat, water, nutrients and carbon dioxide. John developed smart packaged systems and technologies that can distribute these by-products into a controlled growing environment, effectively using waste to create energy to facilitate plant growth.

"Growing indoors is becoming increasingly important as populations grow and cities need to feed themselves. But it's energy-intensive," John says. "So, directing clean energy into a greenhouse or vertical farm not only solves an energy problem but

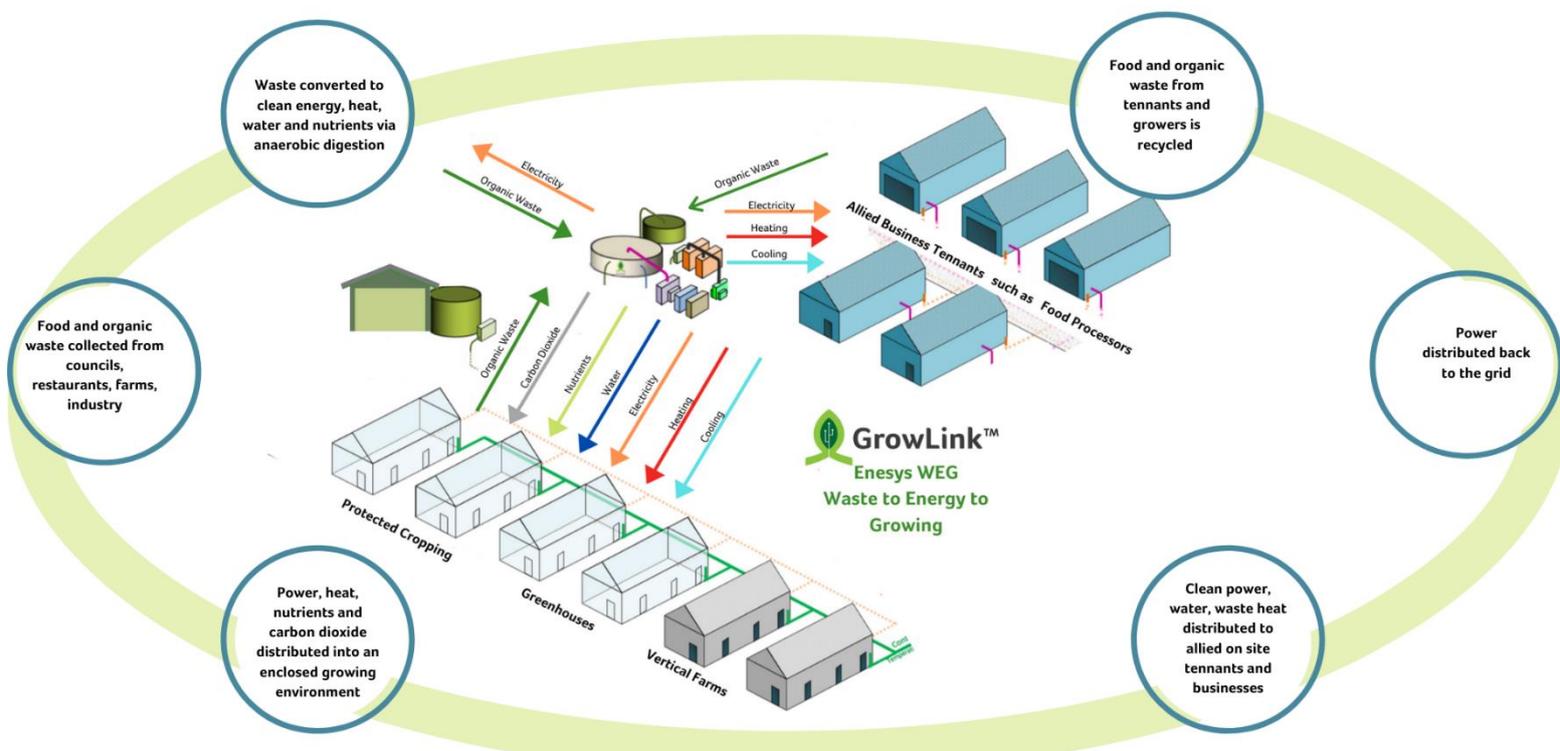
Enesys systems can also provide heat, chilling, water, nutrients and potentially carbon dioxide to help plants thrive."

### Integration of Three Industries

Taking it one step further, John also realised that the Waste, Energy Generation and Growing industries have enormous natural resource synergies and could benefit from sharing resources

When placed together within one precinct, they can offer the optimum potential to share resource connectivity and utilise otherwise wasted products, increase profit, and dramatically reverse the ecological damage that is caused by the same industries acting in isolation.

"We can link multiple industries on the one site. We can create enough energy, water, and nutrients for numerous allied tenants," John explained. "For example, we can direct heat and carbon dioxide generated from waste to a brewer; we could provide waste chilling to a food processor who requires refrigeration, we can offer excess nutrient-rich water to on-site market gardeners. Similarly, we can use the organic waste by-products of the businesses on-site for our energy requirements; therefore, closing resource loops and developing innovative examples of future sustainable precincts and potential for communities."



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### The Technology

GrowLink™, developed by Enesys, is a suite of modular process control systems designed to physically link proprietary packaged equipment, large industrial systems,

and independent businesses together. This enables a company to continue to operate its core business and activities more profitably and partner in a broader circular economy.

The Business Case will detail the technical requirements and economic benefits of GrowLink and the Precinct Partners and demonstrate how specific businesses can adopt circular economies.

Melbourne Innovation Centre (MIC) will support Enesys to develop a sustainable business model for this exciting project and look at various options to integrate the technology across MIC's four business hub locations in Melbourne.

MIC CEO David Williamson says, "this is highly innovative technology and not your typical waste to energy solution. We look forward to working with Enesys and partners to demonstrate the various applications of this technology in a business hub and food ecosystem context."

Enesys hopes that the business case will attract investment, industry, collaboration and precinct partners to accelerate the construction of the project.

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## **CONTACT INFORMATION**

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## **COMPANY INFO:**

Enesys is an award-winning company that develops technical and economic sustainable energy and resources solutions involving the physical and commercial linking of waste, energy, growing, and manufacturing industries to close resource loops and create circular economies. Enesys expertise includes technical and commercial knowledge of renewable energy, sustainable precincts, and community

infrastructure, high-density growing systems, PAR lighting design, and manufacture and bespoke process control design and construction.

Enesys is the Ecologically Sustainable Technology and Research & Development entity owned by Norwood Technologies Pty Ltd which also operates [The Project Office](#) a multi-disciplined electrical and mechanical engineering design and construction consultancy that was established in Melbourne in 1988.

Enesys has a passion for Ecologically Sustainable Systems and project development that go far beyond traditional “Demand Management” and “Energy Monitoring” concepts. We believe that these concepts are necessary consequences of decades of insular thinking and inflexible energy, production, and manufacturing systems. We believe that in this “Plug & Play” era, low maintenance packaged energy and resource transformational systems are the key to economically installing ecologically sustainable systems that are user-friendly, in increasingly more diverse and smaller places.

#### **ATTACHMENTS:**

- Video-Waste to Energy to Growing  
<https://www.youtube.com/watch?v=P6oDRH9bxs4>. NB tech referred to as Enhanced Greenhousing. Now rebranded as Growlink by Enesys- Waste to Energy to Growing.

Video- Enesys Sustainability Philosophy

<https://www.youtube.com/watch?v=ahZrNrvpk9U>

- Team images

<https://www.enesys.com.au/about/>

News

<https://enesys.blogspot.com/>

<https://www.enesys.com.au/news/>

<https://www.facebook.com/www.enesys.com.au/>

<https://www.linkedin.com/company/enesys-ecologically-sustainable-technology/?viewAsMember=true>



# ENESYS

Ecologically Sustainable Technology



## GrowLink

### **ADDITIONAL INFORMATION- MORE TECHNICAL DETAILS**

#### **Beyond Waste to Energy**

Enesys has built sustainable systems that go far beyond the benefits of just **Waste to Energy (WE)** which typically only produces electricity at about 28% efficiency. By introducing Growing (G) in the mix, Enesys WEG can achieve over 84% energy efficiency, recycle water and nutrients from waste and potentially consume the carbon dioxide that is emitted by all conventional WE processes.

Waste, energy and growing are traditionally separated and mature industries and have been selected to offer the optimum resource connectivity (creating circular economies) to utilise conventionally wasted products, increase profit, and dramatically reverse the ecological damage caused by the same industries acting in isolation.

Wastes including fruit, vegetables, food and other soft organics will be diverted from ecologically damaging landfill and mulch heaps to be converted to energy, nutrients, water and carbon dioxide for use by an Indoor Farm.

### **Why Growing as the WE Partner?**

The perfect partner for WE ideally consume electrical energy at the same time it consumes heat energy; this is rarely achieved. In this way, all the energy from waste can be fully used on site, in balance, and with no requirement for energy storage. Modern high-density Indoor farms fit this profile perfectly. Additionally, Enesys WEG recycles water vapour, nutrients and potentially carbon dioxide that can be consumed by fruit and vegetables. Without WEG, growers create carbon dioxide and heat by burning expensive fossil fuels that irreversibly add carbon to the atmosphere.

High density urban farms and vertical farm systems (Indoor Farms) will increasingly become part of our urban landscape to produce fresh fruit and vegetables without the limitations of season, climate, fire, wind, storm, flood, drought and pests. Indoor growing reduces land degradation, food kilometres and water, pesticide, herbicide and fungicide use.

### **WEG Host Industries**

**Enesys WEG** is even more potent when it is hosted by an industry that consistently creates problematic organic wastes. With no waste collection, transport, disposal and penalty costs, hosting industries can convert their waste problem to energy for their own use, minimise expensive and damaging fossil fuel consumption and improve their sustainability and energy security. In 2020 alone Enesys has beneficially proposed WEG for a Brewer, Technology Precinct, Abattoir, Waste Recycler, and an onshore Fishery,

Enesys will package this WEG demonstration project as a scalable facility that can be retrofitted to medium and large organisations who have existing problematic waste streams including councils, supermarkets, business and technology precincts, hospitals, resorts, large public venues, brewers, abattoirs, and fisheries. We are fielding ongoing enquiries from the agricultural sector concerning WEG and beneficial recycling of abundant biomass and animal wastes.

### **WEG Explained**

The most compelling reason to include Growing in the demonstration project mix is that **Waste to Energy (WE)** on its own rarely, or inefficiently, uses the cogenerated heat energy from waste conversion which is approximately double the amount of electrical energy that is generated. WE facilities in Australia commonly supply electrical energy and only return about 28% efficiency. With WEG, Enesys can achieve beyond 84% energy efficiency from the same quantity of waste. With clean organic wastes, Enesys WEG may also demonstrate that the carbon dioxide that is ordinarily discharged to the atmosphere by all WE processes can also be consumed by, and accelerate, vegetation growth. Ordinarily, growers create carbon dioxide and heat by burning fossil fuels which irreversibly adds carbon to the atmosphere.

With WEG, Electricity, heat, carbon dioxide and water vapor will supply a closely coupled high density growing facility with a highly controlled climate, PAR grow lighting and nutrient delivery system.

The Business Case will be a compelling vehicle to attract investment, industry, collaboration and precinct partners to accelerate the construction of the project.

The Enesys WEG demonstration project will be based on anaerobic digestion, which does not have significant air emissions and odour issues as typical WE incineration, pyrolysis or gasification processes.

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