# New Technology Advances Lead Anellotech to Announce Commercial Plant Engineering Plans

*Anellotech demonstrates commercially-viable process economics during multi-month runs at its TCat-8® pilot facility and the company will begin planning for a new commercial plant with partners IFPEN and Axens.*

**Pearl River, NY, 16 October 2018** – Sustainable technology company Anellotech confirms significant progress in its Bio-TCat™ technology development program and has begun planning for scale-up design and engineering of a commercial plant with its process development and design partner IFPEN and commercialization, engineering, and licensing partner Axens.

Anellotech is pioneering an innovative manufacturing process to produce cost-competitive renewable chemicals and fuels from non-food biomass. Its patented Bio-TCat thermal-catalytic technology produces a mixture of benzene, toluene and xylene (BTX) which can be used to make important polymers such as polyester, polycarbonate, and nylon, or high-octane gasoline blendstock. Jacobs, a globally respected engineering firm, recently confirmed that the Bio-TCat process enables a $CO_2$ emission reduction potential of 70-90% when compared to petroleum-derived equivalents. Co-product gas streams from Bio-TCat can be used to make significant amounts of renewable electricity, hydrogen or cellulosic ethanol using third party technologies.

Commercially-viable process yields and catalyst performance has now been achieved at economic design conditions at Anellotech's TCat-8® pilot unit in Silsbee, Texas. TCat-8 has demonstrated consistently stable operation of major process steps and recycle loops, with highly-accurate analytic confirmation. These attractive results have been achieved with real world commercial feedstock, loblolly pine recently harvested from Georgia forests. Anellotech's MinFree pretreatment process, operational at multi-ton scale, has been used to ensure low mineral content in the TCat-8 feedstock which is critical for catalyst performance.

TCat-8 has operated for over 2,000 hours with continuous catalyst circulation including a fluid bed reactor, catalyst stripper, catalyst regenerator, quench tower, and recycle compressor. The pilot plant is operating mass balance closures of 100% +/-2%, and regularly completes uninterrupted 24/7 runs. The TCat-8 unit operates inside a commercial chemical facility that is OSHA PSM compliant.

David Sudolsky, President & CEO of Anellotech, said, "Our TCat-8 unit consistently demonstrates stable, economic performance as we continue to further optimize process conditions. These advancements come from the dedicated and coordinated efforts of Anellotech, IFPEN and Johnson Matthey engineers and scientists. We are excited to begin commercial plant engineering activities with our partner Axens and open up engagement with potential partners for investments and locations for the first commercial plant."

This week, Anellotech CEO David Sudolsky will be at the European Forum for Industrial Biotechnology & the Bioeconomy (EFIB) Conference in Toulouse, France, where he will speak on October 17 at 11:30. In the USA, Anellotech Chief Scientific Officer Charles Sorensen will attend VERGE 18 in Oakland, California, on October 16-18. You can find Anellotech in the Expo area at booth number 311.

**About Anellotech**

Anellotech is a sustainable technology company focused on commercializing innovative production of cost-competitive renewable chemicals and fuels from non-food biomass. Founded in 2008, Anellotech has raised US$80 million in cash and in-kind contributions to date. Its patented Bio-TCat™ technology is an efficient thermal catalytic process for converting biomass into BTX aromatics (a mixture of benzene, toluene and xylene) which are chemically identical to petroleum-based counterparts. High purity benzene, toluene and xylenes are used to make commodity polymers such as polyester (polyethylene terephthalate or "PET"), polystyrenes, polycarbonates, nylons and polyurethanes which are used to manufacture plastics for consumer goods such as beverage bottles, food packaging, clothing, footwear, carpeting, automotive and electronic components. Bio-TCat technology can also produce renewable AnelloMate™ fuel blendstocks which can be used to lower the GHG emissions of producing gasoline, jet fuel, diesel, and low-sulphur marine fuels. The Bio-TCat process is being demonstrated with loblolly pine feedstocks at Anellotech's TCat-8® pilot plant in Silsbee, Texas and is currently collecting data to be used for scale-up and commercial plant design by Anellotech and its engineering and licensing partners IFPEN and Axens.

Anellotech's Bio-TCat technology will help aromatics chemical producers and brand owners meet environmental sustainability goals for their products, due to its low carbon footprint. Unlike many others, Anellotech's thermal-catalytic technology is focused on utilizing lower-cost and highly available lignocellulosic starting materials such as wood and agricultural by-products as feed rather than processes that start with sugars or that are based on fermentation.

Anellotech complements its world-class R&D team with in-depth, highly-interactive, and long-term alliances with leaders in process development, catalysis, engineering design, and licensing to accelerate development and drive cost-competitiveness. IFPEN is our process development and scale-up partner, Johnson Matthey is our catalyst development partner, and Axens is our partner for industrialization, commercialization, global licensing and technical support. Industry-leading strategic partners in the BTX supply chain, including Suntory, Toyota Tsusho, and other confidential strategic investors have provided funding to Anellotech.

To learn more, please visit: www.anellotech.com

**About Axens**

Axens (www.axens.net) is a major international process licensing and engineering firm that provides a broad range of process and catalytic solutions to the oil refining, petrochemical, and natural gas industries including novel technologies for renewable biomass conversion. They are ideally positioned to cover the entire engineering value chain for Bio-TCat technology including design & licensing packages, feasibility studies, unit start-up, and technical service. Axens success is based on highly trained human resources, modern production facilities and an extended global network of engineers and technicians for manufacturing, technical, and commercial support services.

**About IFPEN**

IFP Energies nouvelles (IFPEN), is the French public research entity and a major research and training player in the fields of energy, transportation, and the environment. From research to industry, technological innovation is central to all its activities, structured around three strategic priorities: sustainable mobility, new energies and responsible production and use of oil and gas resources. IFPEN collaborates with Anellotech to leverage its expertise in fluid bed catalytic reactor technology, refining, and petrochemicals processing. In addition to extensive activities at its R&D center in Solaize, France, IFPEN provides technical experts to work on-site at Anellotech's Texas location to operate the TCat-8 development unit.

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