



REPORT OVERVIEW

Subjects addressed:

- Renewable alternatives to conventional petrochemical routes and products – technologies and value chains described and assessed
- Global plant construction announcements for renewable chemicals
- Sector Growth Analysis
Risk-Adjustments of Sector Growth Projections

Bio-Based Chemicals: Going Commercial

Responding to economic and market drivers, some of the world's largest chemical producers are investing in and pursuing projects to more profitably manufacture chemicals instead of biofuels. This is taking place as many governments back away from carbon regulation and biofuels development funding, as biofuels utilization hits numerous other obstacles, and while oil prices remain volatile. Some bio-based commodity chemicals, like ethanol and citric acid, have long been commercial. However the new environment has created an exciting tipping point in strategic partnering, investment, and construction that is driving rapid growth in renewable chemicals commercialization.

Many new projects are being announced by biotech process developers allied with credible conventional industry players. Projects cover a wide range of end-uses, from commodity thermoplastic and thermoset and specialty polymers, to solvents, surfactants, lubricants, coatings, plasticizers, other additives, fragrances, emollients, and nutraceuticals. Projected growth rates for renewable chemicals are significantly above conventionally sourced chemicals, and thus the high industry interest.

Who is involved in what value chains? Which chemicals are receiving the most development thrust? How do identical renewable replacements (e.g., renewable ethylene is the same molecule as conventionally produced ethylene) differ from new and unique renewable molecular replacements? What is the current size and real growth rate of this sector? How reliable are various capacity announcements? How well partnered and financed are the companies and their projects, and how sound are their business plans? How significant are these capacity announcements? How big will these biochemicals be by 2015?

To answer these questions, Nexant has completed a new multi-client report which analyzed the emerging renewable chemicals technologies being commercialized, maps the value chains for the different end-use products, and relates these to the incumbent routes and products. To develop growth projections, Nexant cataloged new plant announcements and likely future initiatives and provides risk-adjusted analyses of growth projections using its judgment of the reliability of each announcement.

This report, **"Bio-Based Chemicals: Going Commercial"**, is a comprehensive study. Nexant has investigated and evaluated commercial announcements of renewable chemical technologies, targeting chemical intermediates and end-products such as:

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|---------------------|---------------|
| ■ Alcohols | ■ Isoprenoids |
| ■ Ethers | ■ Aromatics |
| ■ Glycols | ■ Olefins |
| ■ Diols | ■ Dienes |
| ■ Cellulosic Sugars | ■ Ammonia |
| ■ Acids | ■ Other |
| ■ Diacids | |

Nexant's multi-client report will be useful to those shifting toward renewables, those looking for alternative uses of renewable resources or conversion technologies, biotech players interested in what the competition is doing, and chemical companies interested in emerging bio-based competition. It will be valuable to anyone who needs a comprehensive overview of progress in the sector, or to know when and how much capacity is expected to come online, and how realistic project announcements may be.

The **"Bio-Based Chemicals: Going Commercial"** report was published in January 2012 and is available immediately for US\$18,000. Please contact ChemSystems@nexant.com for a subscription form.

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