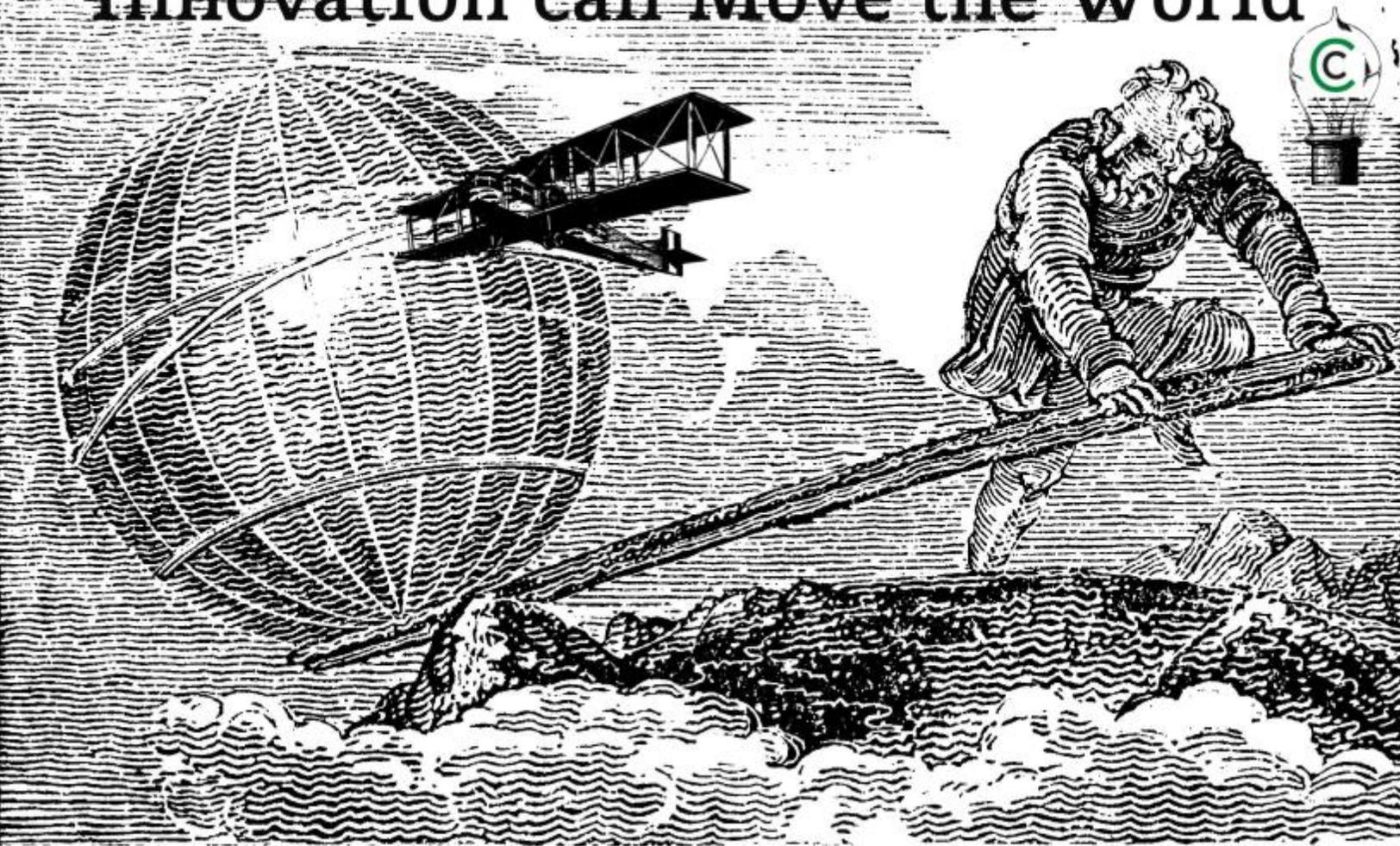


# Innovation can Move the World



Claus Technology is  
Coming to Town

**Commercializing Innovation**

 SIXTH ELEMENT  
SUSTAINABLE  
MANAGEMENT

## Bio of the Author:

Lee Enterprises Consulting is the world's premier bioeconomy consulting group. We have over 100 experts worldwide. Our experts have done thousands of projects in every corner of the globe. We have in-depth expertise in biodiesel, ethanol, biomass power, renewable chemicals, renewable jet fuels, pyrolysis, hydrolysis, gasification, waste-to-energy, anaerobic digestion, torrefaction, wastewater treatment, butanol, steam reformation, biochar, carbonization and biogas. In addition to our world renowned experts, we maintain ongoing relationships with many of the top renewable energy law firms, accounting groups, engineering groups, and technology providers.

Dr. Kutney, Ph.D. in chemistry, has participated in all aspects of innovation and technology commercialization in the forest products industry, with two decades of executive experience with global corporations and entrepreneurial enterprises. Besides business mentoring and executive coaching, services include strategic leadership, contract negotiations, *pro forma* design and appraisal, techno-commercial evaluations, feasibility studies, technology and venture vetting and audits.

### Forestry Bioenergy and Biofuels

- Executive Vice President, Director of Emerging Technologies and lead consultant in forestry bioenergy for the world's premier bioeconomy consulting group ([Lee Enterprises Consulting](#))
- Chairman of the expert panel on international standards for solid recovered fuels (SRF) for ISO ([TC 300](#))
- Member of the expert panel on international standards for solid biofuels (wood/biomass pellets, torrefied pellets and biochar briquettes) for ISO ([TC 238](#))
- Member of the expert panel on Canadian standards for solid biofuels for CSA
- Mentored and edited the business plans for a biomass pellet venture in the U.S.
- Audited the commercial preparedness of a pyrolysis venture for an IPO in Canada
- Prepared a technology-vetting study on the commercial status of wood-to-fuel technologies for a European client
- Prepared a technology-vetting study on the commercial status of hydrothermal carbonization technologies for a European client
- Prepared a technology-vetting study on the commercial status of pyrolysis-type technologies for a Canadian client
- Prepared a technology-vetting study on the commercial status of waste-to-energy technologies for a Canadian client
- Prepared business plans, feasibility studies and *pro forma* design for Indigenous bioenergy venture in Canada
- Prepared business plans, feasibility studies and *pro forma* design for Indigenous wood pellet venture in Canada
- Executive of a pyrolysis/biochar venture in Canada
- Director of Biochar Ontario
- Forest products research manager for an international corporation (ICI Canada – CIL)
- Executive of a biomass processing business in Canada
- Executive of a bioproducts/bioenergy business of a major forest products company (Tembec) in Canada

### Entrepreneurship and New Ventures

- Managing Director of own consulting venture
- Executive coaching and mentoring for a start-up venture
- President of an emerging-technology venture
- Chief Operating Officer with a new-technology venture
- Approved consultant with the Business Development Bank of Canada ([BDC, Entrepreneurs first](#))
- [MBA mentor](#) at the University of Ottawa
- Entrepreneur mentor with [Invest Ottawa](#)

## Claus Technology is Coming to Town

Breaking News: a Canadian venture has just moved up into the #1 spot of the “Top 50 Hottest Companies in the Advanced Bioeconomy,” according to the annual survey by *Biofuels Digest* - Advent Bioenergy (season2bjolly.ca), founded by the reclusive entrepreneur, S. Claus. Sixth Element Sustainable Management and its strategic partner Lee Enterprises Consulting are proud to have been working with Advent Bioenergy for several years, providing executive management mentoring and coaching, leading the preparation of their business and financial plans, and providing an audit of their commercial status. When we began developing the business plan, Mr. Claus only had a small unit of the process in his workshop; today, an industrial-scale unit is under construction, designed by our strategic partner Zeton. The Claus-pyrolysis demonstration facility is being built at the company’s Energy Laboratory Facility (ELF) in Eureka, Nunavut.

The Claus pyrolysis technology is a patent-pending, two-step process: the first stage is a rotary kiln which involves torrefaction of roasting chestnuts on an open fire; the second stage is a slow-fast pyrolysis hybrid, producing a high-grade biochar that has been submitted to the certification program of the International Biochar Initiative (IBI). This product has been tested by the noted biochar expert Dr. Hugh McLaughlin, a consultant with Lee Enterprises, who found, after checking it twice, that it was exceptionally good for goodness’ sake.

With his business expanding, Claus is now working on his next generation of biofuels at the company’s newest facility, the Northern Ontario Eco-Laboratory (NOEL). The details of the top secret project, under the code-name “Rudolf,” are kept under lock and key, but there are stories that it involves an aviation biofuel and reindeer (Comet Biorefining and Donner Bioenergy GbmH have been rumored to be part of the project, but calls to the companies were not returned before press time). Controversy, though, swirls around the new Claus technology; environmental non-government agencies (ENGOS) have accused the northern entrepreneur of animal rights abuse and even genetic engineering. And the save-the-reindeer movement is gathering momentum. There have been accusations that the financial support for these groups has come from major coal corporations, E. Skruge Energy (bahhumbug.ca) and Krampus Coal (coalinstocking.com), but the companies deny the charges. Claus had no comment about these rumors but when referring to his pet project, he did state, with a twinkle in his eye, “it’ll go down in history.”

Advent Bioenergy continues to partner with another Canadian firm, Kris Brothers Forest Products (krismass.ca), for the supply of biomass for the new technology. Jack Frost, a spokesperson for Kris Brothers, has stated that the firm only utilizes sustainable biomass, including a blend of boughs of holly, poinsettia, and discarded trees from last holiday season. The pre-treated biomass is sold under the trade name Kris-mass,<sup>®</sup> but their employees still call it by the term used in the early days of its top-secret development, “X-mass.” The latest development that Kris Brothers Forest Products is working on is a bleached biomass; and Claus is dreaming of this “White Kris-mass.”

Advent Bioenergy is pleased to be among the “leaders of the advanced bioeconomy,” presenting at the Advanced Bioeconomy Leadership Conference (ABLC) on March 2, 2017, in Washington, DC. Claus, famous for his outlandish red suits, plans to give a presentation on the carbon-

negative applications of biochar, and stated that it should be an “interesting” conference, especially with the upcoming inauguration of an unconventional President. When asked about the possible influence of the new administration on the bioeconomy, Claus replied that he was concerned that Mr. Grinch, a climate change denier, had been selected to head the EPA. But in his typical jolly manner, Claus refused to say whether the President-elect will be bad or good for biofuels and added, with another twinkle in his eye, that he was glad his research facilities were located in Canada!



Sixth Element Sustainable Management is a "boutique" consulting firm specializing in **commercializing innovation**, and evaluating the business preparedness and commercial potential of technology developers and their projects. We provide executive management services for inventors, entrepreneurs, investors, and public sector agencies in new technology, start-ups and early-stage ventures. Services are directly provided by the Managing Director of Sixth Element Sustainable Management, Gerald Kutney, Ph.D. in chemistry.

Venture success depends more on management than the technology itself. Dr. Kutney has participated in all aspects of innovation and technology commercialization, from the research laboratory to patents to marketing to the executive suite. With two decades of executive experience in technology commercialization with global corporations and entrepreneurial enterprises, he brings the innovation of research and technology development, the financial discipline of big business, and the spirit of entrepreneurship to start-ups and early-stage companies.

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