

# CHRIS BURK, PE

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Chemical Engineering & Techno-Economics Consultant

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I am a chemical engineer and an independent consultant. I work primarily with companies developing or investing new chemical- and bio-process-related technologies. I use techno-economic modeling to help them understand the parameters and risks that drive their economics, so that they can make objective decisions about which ideas to develop and how to best develop them.

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## PROFESSIONAL EXPERIENCE

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Consultant at Burk Engineering LLC, Salt Lake City, UT 2016 – present

*My clients have included private and academic startups, venture capital firms, and technology start-up incubators, in industries including energy storage, biofuels, energy production, nano-materials, oil & gas, and others. References available upon request.*

Senior Process Engineer at New Sky Energy, Boulder, CO 2014 – 2016

*New Sky Energy recruited me to bring scale-up and process engineering experience to their team as they deployed a first-of-its-kind hydrogen sulfide treatment technology.*

- Developed techno-economic models to evaluate competitiveness, direct research, and secure funding.
- Collaborated with laboratory personnel to design and operate equipment for collecting scale-up data.
- Guided engineering and management personnel in the design, procurement, construction, and commissioning of three progressively larger natural gas sweetening pilot plants.

Process Engineer at Continental Technologies, Boulder, CO 2011 – 2014

*Continental Technologies is an EPC firm specializing in contract design, fabrication, and commissioning of pilot plants. As part of a team of engineers, I performed various duties, including project management, process design, equipment specification, safety analysis, and commissioning. I also continued to do techno-economic analysis for their sister company, Eltron Research & Development.*

- Directed the development and implementation of techno-economic models used to steer a \$10MM research effort to develop a catalytic process for converting natural gas to more valuable hydrocarbons.
- Successfully designed, fabricated, and commissioned nine skid-mounted pilot plants across a range of industries.

Process Engineer at Eltron Water Systems, Boulder, CO 2007 – 2011

*Eltron Research & Development spun off Eltron Water Systems to commercialize its electrochemical water treatment technologies. I wore many hats as the first engineer at this new company.*

- Functioned as chief engineer for the development and scale-up of a novel electrochemical hydrogen peroxide and peracetic acid (PAA) generation system.
- Managed the engineering, construction, and commissioning of a prototype PAA generation system for water treatment on the International Space Station. The \$210K system was delivered on schedule, under budget, and was evaluated for NASA by Wyle Labs.

Research Engineer at Eltron Research & Development, Boulder, CO 2006 – 2007

Research Engineer at Supresta / Akzo Nobel, Ardsley, NY 2004 – 2006

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## EDUCATION & LICENSURE

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Licensed Professional Engineer in the State of Colorado. License 0047612.

MEng & BS Degrees in Chemical Engineering from Cornell University.

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## PUBLICATIONS, PRESENTATIONS, & OTHER WRITING

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**Burk, C.G.**, "Techno-economic analysis for new technology development," *Webinar for AIChE*, (Sept. 2018).

**Burk, C.G.**, "Techno-economic analysis for new technology development," *Presentation at the ACS National Meeting*, Boston, MA (Aug. 2018).

**Burk, C.G.**, "Techno-economic modeling for new technology development," *Chemical Engineering Progress*, pp. 43-52 (Jan. 2018).

**Burk, C.G.**, Repeat guest writer for *AIChE ChEnected*, [www.aiche.org/chenedected](http://www.aiche.org/chenedected).

**Burk, C.G.**, "Techno-economic analysis for new technology development," *Poster presented at TechConnect World Innovation Conference*, Washington, DC (May 2017).

**Burk, C.G.**, Various articles, *Burk Engineering Blog*, [www.BurkEngineeringLLC.com/blog](http://www.BurkEngineeringLLC.com/blog).

Mundschau, M.V., **Burk, C.G.**, Gribble, D.A., "Diesel reforming using catalytic membrane reactors," *Catalysis Today*, **136**, pp. 190-205 (Mar. 2008).

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## INDEPENDENTLY DEVELOPED SOFTWARE

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*Occasionally I want products that are not available commercially and decide to build them myself.  
These are two that I have developed and released.*

PROCESS UTILITIES | Excel Add-In for Process Engineers | [www.ProcessUtilities.com](http://www.ProcessUtilities.com)

An Excel Add-in that streamlines process engineering in Excel. Over 500 copies in use by engineers worldwide.

GUIDE PACE | Mobile app for Mountain Guides | 1200+ paid downloads | Average rating 4.5/5 stars

A mobile app for estimating travel time in the mountains. Available on the iOS App Store and Google Play.