

WILLIAM SONG, P.E. *Director of Engineering*

PROFILE

William Song is an Engineering Manager at ENERGYneering Solutions, Inc. (ESI). Over the course of ten years in the renewable technologies world, he has developed a wide ranging portfolio that reaches into all aspects of the bio-fuels market. His sizable knowledge base includes an in-depth understanding of power generation compliance regulation as well as a wide range of technical skills. His meticulous attention to the details has proven invaluable to ESI's design team.

EDUCATION

BS, Mechanical Engineering, Yonsei University, Seoul, Korea, 1999
MS, Mechanical Engineering, State University of New York, Buffalo, 2002

PROFESSIONAL LICENSES

Professional Engineer – California (No. M34501)
Lead Verifier- GreenHouse Gas Report Verification (California)
Refinery and Electricity Transaction specialist

AFFILIATIONS

American Society of Mechanical Engineers
Solid Waste Association of North America
BioGas Trade Association

PROFESSIONAL EXPERIENCE

BIO-FUEL UTILIZATION EXPERIENCE

Fuel Supply

- Landfill gas
- Digester gas

Professional Service

- Budget and Schedule Development
- Engineering and Design
- Construction Management
- Utility Interconnection Coordination
- Compliance Engineering
- Operations Assistance

Reciprocating Engine(s)

- Caterpillar
- Jenbacher
- Deutz
- Cooper Superior
- Waukesha

Alternative Prime Mover Experience

- Microturbines
- Stirling Cycle Engines
- Fuel Cells

COMPLIANCE ENGINEERING EXPERIENCE

Professional Service

- Compliance reviews and reporting
- Continuous Emission Monitoring System (CEMS) certification
- Equipment Selection
- Testing Coordination
- Inspection and Maintenance Coordination
- Data Storage System Design based on permit requirement

Air Districts

- South Coast Air Quality Management District (SCAQMD)
- Bay Area Air Quality Management District (BAAQMD)
- New Jersey Air Quality Management District

SAMPLE PROJECTS

BIO-FUEL UTILIZATION PROJECTS (LANDFILL AND DIGESTER GAS)

Reciprocating Engines

- Atotonilco, Mexico / 14 Jenbacher 620s
- Miramar, CA / 2 CAT3520s
- Energy 2001 / 3 CAT3516s
- Gude, Rockville, MD / 1 Jenbacher 316, container
- Oaks, Rockville, MD / 1 CAT3520 container, 1 Jenbacher 316 container
- Finley Buttes, Boardman, OR / 3 CAT3520s, w/Heat Recovery
- Baseline, Ocala, FL / 2 CAT3520s
- Trinity Oaks, Dallas, TX / 2 CAT3520s
- Ostrom Road, Wheatland, CA / 2 CAT3520s, Expandable
- Coffin Butte, Corvallis, OR / 2 CAT3520s, 3 CAT3516s
- Dry Creek, Medford, OR / 2 CAT3520s
- Seminole Road, Dekalb, GA / 2 CAT3520s
- Frey Farm, Lancaster, PA / 2 CAT3520s w/Steam generation heat Recovery
- Penrose, Sun Valley, CA / Cooper Superior, Retrofit
- Toyon, Los Angeles, CA / Cooper Superior, Retrofit
- Pennsauken Landfill, PA / 3 CAT3516s
- Pacific Palms Hotel, CA / 2 Jenbacher 320s, Natural Gas Blend, SCR, Heat Recovery
- Alza, Mountain View, CA / 3 Jenbacher 320s, Heat Recovery
- Bradley, Burbank, CA / 5 Duetz 620s
- Simi, Simi Valley, CA / 2 Duetz 620s
- El Sobrante, Corona, CA / 3 Duetz 620s
- WWTP, Redlands, CA / 1 Duetz 620, Heat Recovery
- Alta Dena Dairy, Industry, CA / 1 CAT3520, Heat Recover, Natural Gas, SCR
- Long Beach Aquarium, LB, CA / 2 Duetz 616, Heat Recovery, Natural Gas, SCR

Microturbines

- Burbank Landfill, Burbank, CA / 1 250kW Ingersoll-Rand, 10 30 kW Capstone
- Jamacha I, San Diego, CA / 4 60kW Honeywell
- Jamacha II, San Diego, CA / 4 70kW Ingersoll-Rand
- Oll, Monterey Park, CA / 6 70kW Ingersoll-Rand
- Calabasas, Agoura Hills, CA / 10 30kW Capstone
- Butterfield, Maricopa, AZ / 1 70kW Ingersoll-Rand
- Allentown WWTP, PA / 13 30kW Capstone
- Toland Road, Ventura, CA / 1 70kW Ingersoll-Rand
- ACME Landfill, Martinez, CA / 4 70kW Ingersoll-Rand
- Mountain View Landfill, CA / 2 70kW Ingersoll-Rand
- American Canyon, Napa, CA / 4 70kW Ingersoll-Rand

Fuel Cell Technology

- Santa Barbara WWTP, CA 2 250kW Fuel Cell Energy, Heat Recovery, Fuel Pretreatment
- Palmdale WWTP, CA 1 250kW Fuel Cell Energy, Heat Recovery, Fuel Pretreatment

High BTU and CNG Gas Conversion

- University of New Hampshire, NH 7,000 SCFM High BTU conversion as turbine fuel w/2 1600kW CAT 3520, De-Sulfur, TSA, PSA
- Central Landfill, Sonoma County, CA 100 SCFM Compressed Natural Gas conversion w/Membrane



**SAMPLE
PROJECTS**
(continued)

Feasibility Study and Technology Review

- Knott Landfill, Bend, OR | *Stirling Biopower pilot project feasibility study*
- Short Mountain, Eugene, OR | *LFGTE Economic Incentives and Applicability Study*

AIR QUALITY DISTRICT MANAGEMENT
COMPLIANCE AND CONTINUOUS EMISSION
MONITORING (CEMS) EXPERIENCE

- Pacific Palms, Industry, CA | *2MW IC engine facility, SCAQMD annual emission report, CEMS certification process and reporting*
- WWTP, Redlands, CA | *900kW IC engine facility, SCAQMD, source testing coordination and reporting*
- Badlands, Moreno Valley, CA | *1MW IC engine facility, SCAQMD, source testing coordination and reporting*
- Penrose, Sun Valley, CA | *10MW IC engine Title V facility, SCAQMD, CEMS certification process and reporting, Title V variance report*
- Toyon, Los Angeles, CA | *4MW IC engine, Title V facility, SCAQMD, CEMS certification process and reporting, source testing*

LANDFILL GAS COLLECTION AND CONTROL
PROJECTS

- Headquarters Landfill, Cowlitz County, WA | *Interim GCCS system design and longterm GCCS system masterplan*
- County of San Diego, CA | *LFG collection and control upgrades for 9 landfills. San Marcos final closure.*
- Knott Landfill, Bend, OR | *Design of Closed Cell GCCS for migration control, Automated Condensate Re-injection system*
- Coffin Butte Landfill, Corvallis, OR | *Collection system design, flare and LFGTE facility integration*
- Carbon Limestone Landfill, Lowellville, OH | *Integration of GCCS and flare system with LFGTE facility*
- Sauk Trail, Detroit, MI | *Flare/GCCS integration with High BTU plant*
- Lorain County Landfill, OH | *Flare/GCCS integration with LFGTE Facility*
- Otay Landfill, San Diego, CA | *GCCS system modification for maximizing LFGTE capacity and minimizing migration*
- Dry Creek Landfill, Medford, OR | *GCCS system design*