



Yoel S. Alemán Méndez

CURRICULUM VITAE

PROFILE

24 years of executive leadership experience in scientific research, engineering, design, construction, operations, and development on the biomass and waste power energy sector, particularly in gasification. Experience includes professional creativity and cleverness at generating value added solutions, strategic insight, and operational strength,

Solid and proven experience on “the bread and butter” activity of engineering: Trouble-shooting Chemical and Energy Process Operations. This excellence has been demonstrated in a variety of technology projects including environmental, cogeneration, combined cycle and power generation understanding that the financial health of a process unit depends so much on the skill of the engineers to trouble shoot problems promptly, safely, and effectively.

All endeavors have been professional, creative, yet practical owner-oriented solutions for clients. I pride myself on bringing energy and passion to the business. Astute, results-oriented, leader with success managing international projects to achieve high-quality results with extensive industrial project life cycle knowledge.

MAIN AREAS OF INTEREST

- ✓ Company's Technology Strategy.
- ✓ Development of Technological Resources.
- ✓ Efficiently, profitably, and securely Tech implementation.
- ✓ Technology Awareness.
- ✓ Product design acc. company vision, and roadmap.
- ✓ Energy expert transferring knowledge to industrial sector.
- ✓ Engineering Team Management.

PROFESSIONAL EXPERIENCE

2010-present. Chief Tecnology Officer.

EQTEC IBERIA SLU / EQTEC plc. Member of the BoD. Barcelona Spain.
Technical Responsible C-Level.

- ✓ Director of all project functions, conceptual design, engineering, construction, commissioning, startup and project transition to commercial operation.
- ✓ Manage a cohesive and highly competitive engineering team and field plant operators.
- ✓ Ensure the success facilities operation.

Developed Projects:

- **NFCP:** Integrated Biomass Gasification Power Plant (IBGPP): 2,4 MWe via 2x612 Jenbacher Gas Engines. Wood Chips gasifier of 12 MWth. (CA, USA)
- **Polygen:** RDF gasification to SNG facility. Engineering delivered for the gasification Island. (Poland)
- **Napa Valley:** Integrated Biomass Gasification Power Plant (IBGPP): 2,4 MWe via 2x612 Jenbacher Gas Engines. Wood Chips gasifier of 12 MWth. (CA, USA)
- **Belisce 1:** Integrated Cogeneration Biomass Gasification Power Plant (ICBGPP): 1,8 MWe via 1x612 Jenbacher Gas Engines. Wood Chips gasifier of 5,2 MWth. (Croatia)

- **Karlovo Biomass EOOD:** Integrated Biomass Gasification Power Plant (IBGPP): 4 MWe via 2x620 and 1x612 Jenbacher Gas Engines. Straw Pellets gasifier of 18 MWth. (Bulgaria)
- **Lorraine University (LERMAB):** Gasification Pilot Facility of 50 kg/h feedstock throughput. (France)
- **Syngas Italy:** Integrated Biomass Gasification Power Plant (IBGPP) 1,2 MWe via 1x612 Jenbacher Gas Engines. Biomass gasifier of 4.8 MWth. (Italy)
- **Extremadura University. Badajoz:** Gasification Pilot Facility of 50 kg/h feedstock throughput with integrated Tar capture protocol and FsherTropch reactor. (Spain)
- **Movialsa:** Integrated Cogeneration Biomass Gasification Power Plant (ICBGPP): 6 MWe via 3x620 Jenbacher Gas Engines. Olive Pomace, 4xgasifier trains of 5.2 MWth. (Spain)

Responsible for all technical/engineering aspects of fast-track design-build project from the proposal phase, through contract negotiations, facility design, field construction support, testing, and contract closure.

2007-2010

Lead Process Engineer.

Garó Engineering S.L / Poligas Ambiente S.L. Barcelona, Spain.

Technical Responsible.

- ✓ Performed process design engineering, H&M balance, P&ID, DSC concepts, procurement spec.
- ✓ Lead the engineering team and field technicians on the Waste to Energy projects for electricity generation.
- ✓ Establishing all project design bases.
- ✓ Performing process operating conditions.
- ✓ Acquisition support and vendors analysis.
- ✓ Developing the operation philosophy and control system implementation.
- ✓ Management of plant operation.

Developed Projects:

- **Polygas Ambiente:** First WtE gasification facility in Europe with Installed capacity of 8,5 MWe driving 11 Jenbacher Gas Engines. (Spain)

Process and mechanical design for the revamping of 8,5MWe plastic containing RDF Gasification Facility.

2005 - 2007

R&D project Researcher (PDI).

University of Zaragoza. Spain.

Developed Projects:

- Development of Applied Research projects in the field of Renewable Energies. (Energy Recovery via Gasification and Pyrolysis of Biomass, Plastic Waste and End of Life Tires)
- Research tasks related to study of fluidized beds biomass gasification and other thermochemical processes.

2005 - 2006

Lead Process Engineer.

Diseño y Gestion Medioambiental SL (DIGEMA)

Zaragoza, Spain.

Technical Responsible:

- ✓ Performed process design engineering, H&M balance, P&ID, DSC concepts, procurement spec.

- ✓ Lead the engineering team and field technicians on the Waste to Energy projects for electricity generation.
- ✓ Establishing all project design bases.
- ✓ Performing process operating conditions.
- ✓ Acquisition support and vendors analysis.
- ✓ Developing the operation philosophy and control system implementation.
- ✓ Management of plant operation.

Developed Projects:

- **Engineering and Construction of a Modular Biomass Gasifier GBL-350:** Guascor Ingeniería SA. (Spain)

Developed a complex simulation models for biomass gasification.

2003 - 2005

R&D project Researcher (PhD Lecturer).

University of Zaragoza. Spain.

Activities:

- Development of Applied Research projects in the field of Lignocellulosic Biomass Gasification.
- Research tasks related to study of fluidized beds biomass gasification and other thermochemical processes.

2000 - 2003

University Professor.

Renewable Energy Research Center (CETER). Polytechnic High Institute. Havana Cuba.

Activities:

- Head of Research Projects and Laboratory Coordinator
- Lecturer of the Energy department:
 - Boilers and Steam Generation.
 - Power Plants.
 - Energy Generation.
 - Modern Methods of Heat and Mass Balances.
 - Mechanical Engineering.
 - Renewable Energies.
 - Tutoring of university students.
 - Transfer of knowledge to industrial sector.

1996 - 2000

University Professor.

Renewable Energy Research Center (CETA). Central University of Las Villas. Villa Clara, Cuba.

Activities:

- Head of Research Projects Thermochemical Conversion.
 - Development of a Gasification Pilot Unit (100 kg/h) utilizing Sugar cane Baggase.
 - Modification of existing B&W boiler into a Biomass Gasifier.
- Lecturer of the Energy department:
 - Boilers and Steam Generation.

Senior Researcher.

Agricultural University of Athens. Department of Natural Resources. Laboratory of Farm Structures. Greece. 1997-1999 - Grant holder of the ALFA project. (ALE-Biomass pyrolysis and gasification).

- Engineering, development, construction, and operation of a Biomass Gasification Pilot Unit (100 kg/h) utilizing different feedstocks.

EDUCATION

✓ PhD in Chemical Engineering

Title: Sugarcane bagasse gasification. Exergy assessment of industrial application. (Qualif: Cum Laude)
University of Zaragoza, Spain. 2010.

✓ Chemical Engineering. Advanced Studies Certificate (DEA)

University of Zaragoza, Spain. 2009.

✓ MSc. Renewable Energy.

Universidad Central "Marta Abreu" de Las Villas, UCLV, Cuba. 2000.

✓ Specialization Training-Course "Biomass Gasification"

Agricultural University of Athens. Greece. 1999

✓ Mechanical Engineer (Higher degree)

Universidad Central "Marta Abreu" de Las Villas, UCLV, Cuba. 1996.

ADDITIONAL TRAINING

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| ✓ Expert in energy recovery from biomass and wastes, pyrolysis, gasification, biofuel synthesis. | ✓ Steam Generation Use and Transport. |
| ✓ Advanced Techniques for Simulation and Optimization of Chemical Processes. | ✓ Heat Transfer. |
| ✓ Modern Methods of Mass and Energy Balance. | ✓ Global problems of Energy and Environment. |
| ✓ Combustion Theory. | ✓ Team Building |
| | ✓ Project Leadership and Management |

PUBLICATIONS AND PRESENTATIONS

- ✓ Alemán, Y. Rubio, A. Critical Comparative Analysis of the different methods for bagasse Combustion and the carbon losses in steam boilers. Engineering Energetic Magazine. Cuba. Jan, 1998.
- ✓ Alemán, Y. Rubio, A. Isokinetic equipment for carbon loss sampling in steam boilers. Proceeding of III International Thermoenergetic Conference. Cuba. Nov, 1997.
- ✓ Abeliotis, K., Aleman, Y.: Flash pyrolysis of wood crops to obtaining biofuel. Proceeding of the Conference AgEnergy. Athens. Greece. 1999.
- ✓ Alemán, Y.: Gasification of biomass in Atmospheric fluidized bed reactor. Influence of the Temperature and of the air factor in the chemical composition and in the gas quality. Proceeding of the International Conference Medioambiente Siglo 21. Cuba, 1999.
- ✓ Abeliotis, K., Alemán, Y.: Gasification of Energy Crops in an Air-Blown Fluidized Bed. Proceeding of the World Conference of Biomass for Energy and Industry. Seville. Spain. 2000.
- ✓ Esperanza Perez E., Alemán Y.: Fluidized bed Gasification of Sugar Cane Bagasse. Influence on Gas Composition. Biomass Magazine. Jan. 2000.
- ✓ Alemán Y. Air distributor designs for fluidized bed gasifiers. Centro Azucar, Vol. 1. 2001.

AUTHOR OF TECHNOLOGICAL PATENTS & APPLICATIONS

- ✓ EU patent no. 14786221, Spanish patent no. ES2436844B1, UK, Croatia, and Poland patent no. 3050941, covering a "PROCESS AND REACTOR FOR GASIFICATION OR ORGANIC SOLID MATERIALS"
- ✓ EU patent no. 14786222, Spanish patent no. ES2441691B1, UK, Croatia and Poland, patent no. 3061803, Chinese patent no. 201480070208-9, covering a "PROCESS AND REACTOR FOR CONDITIONING A GAS STREAM FROM A GASIFIER, THERMAL CRACKING OF TARS AND STEAM REFORMING"
- ✓ Spanish patent no. ES2571992B1, covering a "PROCESS AND COGENERATION PLANT THROUGH GASIFICATION OF ORGANIC SOLID MATERIALS"