europass Curriculum vitae

PERSONAL INFORMATION

Diego Oñate Arresti

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POSITION

Chief Technical Officer of Eficiencia & Sostenibilidad S.L.U.

WORK EXPERIENCE

2008–Present

Founder and Chief Technical Officer / HTRI (Heat Transfer Research, Inc.) member

Eficiencia & Sostenibilidad S.L.U., Haro (Spain)

- Thermal design and optimization of shell & tubes heat exchangers in the nuclear island of Hinkley Point C nuclear power station (EPR - third generation pressurized water reactor).

- Development of direct contact technologies (without tubes) for the transfer of sensible (no phase change) and latent (evaporation / condensation) heat applicable to power generation (barometric condensers, deaerators) and heat recovery (RECOND-PLUS development project for +15% efficiency increase of existing natural gas boilers).

- Chiller (brine as cold fluid) and condenser (water as cooling agent) shell and tubes exchangers for high duty compression refrigeration cycles.

- Air-cooled coolers and process condensers according to API 661with forced & induced draft fans using high fin tubes.

- A-frame type vacuum steam condensers for solar and conventional power plants with forced draft and high fins.

- Direct fired heaters (box and cylindrical types, natural gas and fuel -oil fired) as process heaters/partial vaporizers. Refinery vis-breakers and thermal oil heaters (cylindrical type) as back-up/start-up heat transfer fluid heaters in solar thermal plants.

- Design (basic and detailed engineering) of a 100 kWe cogeneration plant based on biomass, consisting of a regenerative Brayton cycle using micronized wood sawdust (<100 microns) as fuel.

- Design (basic and detailed engineering) of a 300 kWe cogeneration plant using an ORC (Organic Rankine Cycle) cycle using n-butylbenzene as a thermal fluid and combustion of cereal straw (using gas recirculation to limit the melting temperature of ashes).

- Study of drying kinetics and dryer design (trommel type) of green wood chips using exhaust gases from cogeneration engines (G20).

- Design and optimization (PINCH method) of steam and condensates network for cereal flakes plant. Design of steam condensers and shell and tube exchangers (coolers and heaters).

- Development of slurry cooling towers project for zinc extraction mine (Nigeria).

- Design (basic and detailed engineering) of a "downdraft" gasifier for the energy recovery (heat and power) of wood residues in sawmill.

- Thermal balance and optimization of superheated water network in Ziérbana biodiesel plant (Vizcaya).

- Energy Saving Audits in spas and sports centers (several).

2015–2016

Head of Thermal Engineering (Concentrated Solar Power Specialist)

MAC Thermal & Process Industries, S.A., Miranda de Ebro (Spain)

- Thermal energy storage (TES) exchangers between thermal oil and binary/ternary molten salts for parabolic trough solar thermal plants (range from 50 MWe to 200 MWe).

- Steam generation systems (SGS) trains (economizer, evaporator, superheater & reheater) of different types (forced circulation with kettle type evaporator and natural circulation with separated steam-drum) for parabolic trough and tower solar thermal plants (range from 50 MWe to 200 MWe).

- Feedwater Heaters exchangers (FWH) for solar and conventional power plants. High pressure with hemispherical head and three zones: desuperheating/condensing/subcooling an low pressure with flanged head and two zones: condensing/subcooling.

- Vacuum steam surface condensers for solar and conventional power plants. Coolant: seawater, brackish water, cooling tower water. Tubes: duplex, admiralty, titanium.

2012–2014

Thermal Design Engineer

MAC Thermal & Process Industries, S.A., Miranda de Ebro (Spain)

- Vertical (TEMA NEN-vaporization in tubes) and horizontal (TEMA NGU & NHU-vaporization is shell) thermosyphon (natural circulation) reboilers and forced circulation (kettle-TEMA NKU) reboilers for distillation columns.

- Horizontal (TEMA NJ12N) condensers for condensation of vapours from distillation columns with presence of non-condensables (important mass transfer resistences to be considered).

- High pressure inter-cooler compression gas coolers (400 bar-g).

- Vertical reflux condensers (knock-back) for recovery of a volatile solvent from a non-condensable exhaust.

- Falling film evaporators for concentration of aqueous streams in the food industries.

- Vertical long tube recirculation evaporator for concentrating of mining chemicals.

- Bayonet chlorine evaporators for high temperature differences between cold and hot fluids. Tank suction heaters with bayonet tubes.

2005–2007

Renewable Energy Projects Engineer

Viñaresol S.L., Logroño (Spain)

- Solar thermal installations adapted to the Technical Building Code (TBC).

- Low enthalpy geothermal installations, with vertical probes, for air conditioning by water - water heat pumps.

- Photovoltaic installations connected to grid (RD 661/2007).

EDUCATION AND TRAINING

1995–2004

Chemical Engineering. Process Engineering

University of Zaragoza, Zaragoza (Spain)

Activities and associations:

Thermo Chemical Processes Group (Engineering Research Institute of Aragon - I3A). Development of waste gasification technology for WWTP sludge:

- Implementation of the software for the design, simulation and optimization of a 80 kWe WWTP sludge gasification plant (715 process variables).

- Implementation of a pilot gasification plant of 80 kWe.

2008–2008

Safety and Occupational Health Specialist. CSS (Certified Safety Specialist)

Inforem Formación, Madrid (Spain)

PERSONAL SKILLS

Mother tongue(s) Spanish

Other language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
English B1	C1	B1	B1	B2

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
Common European Framework of Reference for Languages

Communication skills

- Ease of working as a team, acquired in my work as an engineer-consultant.
- Ability to speak in public, acquired as speaker at fairs and public presentations

Organisational / managerial skills

- Experience in project management and people, acquired in my work as project manager.

Job-related skills

- Specialist in thermodynamics and fluid technology applied to processes of energy generation and exchange (thermal and mechanical).

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent user	Independent user	Proficient user	Independent user	Independent user

Digital competences - Self-assessment grid

- Specialist in software of heat transfer (HTRI, ASPENTECH EDR)
- Specialist in software of simulation and optimization of chemical processes (ASPENTECH HYSYS)
- Specialist in software of mathematical modeling of processes oriented to equations (ENGINEERING EQUATION SOLVER).
- Advanced user of software of mechanical design of pressure vessels according to code ASME / EN13445 (PVELITE).
- Advanced user of programming languages (Visual Basic, HTML5, PHP, Javascript) and development environments (XCODE, VISUAL STUDIO).
- Two applications created and uploaded to the Apple AppStore (fSolar and tSolar) about solar energy.
- User of computer-aided design programs in 2D / 3D (AUTOCAD, GOOGLE SKETCHUP).

Other skills

- Ability to carry out manual work such as carpentry, plumbing and electricity

Driving licence

B, D

ADDITIONAL INFORMATION

- Trekking: I like to take a close look at some natural routes of my environment (Toloño mountains, Demanda mountains) enjoying the landscape, collecting mineral samples (copper and gold in Demanda) and fossils (ammonites in the Jurassic region of Toloño).