Saied Dardour

Energy Specialist & Learning Experience Designer

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Education

Executive MBA

Institut d'Administration des Entreprises · Aix-Marseille area, France · 2012-2013

PhD in Process Engineering

Université Paul Cézanne · Aix-Marseille area, France · 2003-2006

Energy & Nuclear Engineering Degrees

École Nationale d'Ingénieurs de Monastir · Monastir, Tunisia · 1999-2001
Institut National des Sciences et Techniques Nucléaires · Paris, France · 2001-2002

Languages

Arabic $\sim Native$ · **French** $\sim Native$ · **English** $\sim C2$ · **German** $\sim C1$

Coding Skills

C++ · Python · JavaScript · PHP · MySQL

Frameworks built on top of these languages, WordPress for website creation, for instance, and D3js for data visualisation.

Microsoft Office 365 Suite of Tools: Outlook, Word, Excel, PowerPoint, Collaborative Microsoft SharePoint Websites.

Work Experience

Founder

Gréoux Research

`https://greoux.re` · Tulln area, Austria · 2024+

Founded *Gréoux Research* to help governments and businesses navigate the evolving landscape of power systems and energy markets, facilitating the transition to a low-carbon future:

- Energy research: We conduct technical and economic analyses of power systems and energy markets, assessing the costs, benefits and broader implications of the industry's shift to Net Zero.
- Modelling and simulation: We develop models and simulations tailored for the energy sector, fostering a deeper understanding of complex issues and supporting organisations in making informed decisions.
- Training services: We organise and support energy economics workshops, leveraging the functionalities of our in-house platform - *Interactive.li* - to provide immersive learning experiences.

Interactive.li is a live survey app that leverages generative AI to enable the analysis of audience feedback, providing valuable insights in real time. The platform also provides support for dynamic simulations, allowing participants to learn by doing in a safe, controlled environment. More information about the app is available here: `https://interactive.li/r/pptx`

Energy Economist

International Atomic Energy Agency

`https://iaea.org` · Vienna, Austria · 2017-2023

Led and managed multi-year projects covering cost analysis, economic and financial appraisal, and macroeconomic impact assessment of power infrastructure projects. These projects involved collaboration with international donors (e.g., the US *Department of Energy*), external contractors, and a variety of stakeholders across IAEA Member States.

✓ Cost Analysis:

- Co-authored an IAEA publication (*Approaches to Cost-Benefit Analysis (CBA) of New Nuclear Power Projects*) outlining a methodology for conducting CBAs as part of technical and economic feasibility studies.
  `https://www.iaea.org/publications/15314`
- Built the *Nuclear Cost Basis* (NCB), a comprehensive toolkit providing guidance and data for consistent cost estimates across all aspects of a nuclear power program.

- Designed the *Technical-Economic Information Database* (TEID), providing analysts in IAEA Member States with key technical and economic data on recent nuclear new build projects.
- Developed a series of web-based *Revenue Requirements Calculators*, estimating minimum revenue and asset utilisation requirements for utility-scale power generation and storage systems, and selected Power-to-X processes.
  `https://nucleus.iaea.org/sites/CBA/SitePages/RR.aspx`
- Led the development of DISCERN, which supports modelling the probability and impact of potential risks and estimating their effects through *Monte Carlo Simulation*.
  `https://nucleus.iaea.org/sites/CBA/SitePages/DISCERN.aspx`

✓ Economic & Financial Appraisal:

- Conducted financial modelling workshops using a variety of tools with a focus on GW-scale energy infrastructure projects.
- Assessed the suitability of selected financing models (public, corporate, project financing/public-private partnerships) for nuclear new build projects, including *Small Modular Reactor* (SMR) projects.
- Explored available options for de-risking nuclear new build projects to attract investment and, ultimately, increase the share of nuclear power in low-carbon electricity generation.
- Analysed the impact of market design and *Power Purchase Agreements* (PPAs), highlighting their structural significance in project finance.
- Discussed the role of the government in mitigating nuclear-specific risks, such as completion risks, and in creating an enabling environment for nuclear new build projects.

✓ Macroeconomic Impact Assessment:

- Delivered regular training workshops on macroeconomic impact assessment using the IAEA EMPOWER (extended input-output) model and other approaches, such as *Computable General Equilibrium* (CGE) models, with a focus on nuclear programmes and new build projects.
- Maintained and documented the Excel-based version of the IAEA EMPOWER model, while initiating the development of a new web-based version. This included defining functional specifications, estimating resource requirements, and planning and executing the project.

✓ Transdisciplinary Research:

- Established and managed a *Coordinated Research Project* (CRP) focusing on *Small Modular Reactors* (SMR). The main outcome of the CRP is an evaluation framework informing the demonstration of the business case associated with SMR and the design of enabling policies and strategies. Elements of the framework include:
  - Economic assessment.

  - Market research and customer segmentation.
  - Analysis of the competitive landscape and development of a value proposition.
  - Business planning and business case demonstrating.

✓ Capacity-Building:

- Planned, organised, and led multiple in-person and virtual capacity-building events (training workshops, expert missions, and technical seminars) to strengthen the capabilities of IAEA member countries in areas such as:

  - Approaches to economic appraisal of power projects (e.g., KSA, Indonesia).
  - Funding and financing issues (e.g., Sri Lanka, Turkey).
  - Planning and budgeting for construction and operation (e.g., Uzbekistan, Jordan).
  - Macroeconomic impact assessment (multiple countries).

✓ Guiding Documents, Technical Reports & Policy Papers:

- Initiated, managed and contributed to the development of several flagship publications of the IAEA, for example:

  - Climate Change and Nuclear Power.
  - Small Modular Reactors: A New Nuclear Energy Paradigm.
  - Advances in Small Modular Reactor Technology Developments.
  - Integrated Life Cycle Risk Management for New Nuclear Power Plants.

- Delivering these resources involved:

  - Hiring and managing external consultants.
  - Interacting with and coordinating different contributors.
  - Setting up collaborative Microsoft SharePoint websites.
  - Developing web visualisations complementing different publications.

Scientific Officer

Commissariat à l'Énergie Atomique et aux Énergies Alternatives

`https://cea.fr` · Aix-Marseille area, France · 2008-2016

Contributed to the development of a variety of nuclear-based power generation technology by CEA. My responsibilities included managing teams of doctoral students, junior engineers, and facilitating joint activities alongside key national and international partners.

✓ High-efficiency Cogeneration:

- Management of an R&D Project Involving CEA and the *Bhabha Research Centre* (BARC):
  - Periodic reporting against planned objectives and work plans.
  - Participation in BARC's *Multi-Effect Distillation* (MED) prototype testing in India.
  - Organisation of the secondment of BARC engineers to CEA.
- Technical & Economic Analyses:
  - Production of process heat for low-temperature applications.
  - Coupling power plants to district heating networks.
  - Multipurpose power plants.
- Modelling & Simulation:
  - Thermodynamic modelling of various *Power Conversion Systems* (PCS).
  - Creation of an in-house tool optimising PCS components.
  - Development of an optimised PCS for the DEMO (fusion) reactor.

✓ Nuclear Engineering Studies (Focus on Design Optimisation & Safety Analysis):

- Multi-objective optimisation of *Sodium-cooled Fast Reactors* (SFRs).
- Dynamic response of SFRs to a number of postulated accidents.
- Multiphysics analysis of severe accidents in light water reactors.

✓ Scientific Software Development & Project Management:

- Developed code chaining and coupling platforms for simulating neutronics, thermal-hydraulics, and thermomechanical behaviour of fuel pins and core structure.
- Created multiple routines in Python and C++ for in-house tools and third-party software (including R and CERN's ROOT) covering design of experiments, meta-modelling, uncertainty propagation, and multi-objective optimisation.
- Managed project development lifecycle from establishing functional specifications to subcontractor management, software testing, and validation.

Dynamic Simulation Engineer

CORYS

https://corys.com · Grenoble, France · 2006-2007

Supported the development and delivery of high-fidelity, full-scope simulators for operator training and engineering support in the Transportation, Power, Oil & Gas, and Chemical industries.

✓ Key Achievements:

- Developed and maintained simulator modules for thermal-hydraulic, electrical, and control systems of nuclear power plants.
- Built and tested a system thermal-hydraulic model of the steam cycle of a typical coal power station.
- Conducted systematic tests (unit, integration, functional, and regression) on newly developed models and modules.
- Prepared detailed documentation for models and associated code and made them available internally within CORYS.

PhD Candidate

Aix-Marseille Université

https://www.univ-amu.fr · Aix-Marseille area, France · 2003-2006

Thesis: Development of an integrated power and desalination plant for the co-generation of electricity and freshwater through seawater desalination.

✓ Research Activities:

- Reviewed state-of-the art approaches to seawater desalination.
- Developed models and simulations for dual-purpose (power and desalination) plants.
- Suggested optimised configurations for the integrated power and desalination plants.
- Performed a techno-economic assessment of the optimised systems identified so far.

✓ Teaching Activities (Applied Thermodynamics Courses for Engineering Students):

- Brayton/Rankine cycles, refrigerating systems, heat pumps, HVAC.
- Desalination processes.
- Energetic/exergetic analysis methods.
- Technical and economic assessment approaches.