SUMMARY OF EXPERIENCE:

Mark Pérès is dedicated to the advancement of nuclear energy as part of the global solution to improve human quality of life and reduce harm to the planet caused by pollution. He has over forty years of experience in nuclear power and hazardous waste facility design, licensing, construction, commissioning, engineering, operations, and decommissioning. He is currently the President of Pérès Engineering LLC and a PhD candidate and Adjunct Professor in Nuclear Engineering at University of South Carolina. His research focus is on coal plant repowering with nuclear heat and on small modular reactor and microreactor design and deployment.

Mark’s prior roles include Vice President of Engineering at Kairos Power and Executive Project Director for Fluor's NuScale Power Small Modular Reactor (SMR) Project. He led the engineering team during the design of the Kairos Hermes test reactor to support a successful US NRC 10CFR50 construction permit application. He served as the NSSS Design Manager and Vice President of Engineering for NuScale Power during design and development of the first successful 10CFR52 SMR Design Certification Application to the US NRC. Earlier, Mark held several leadership roles at US DOE’s Hanford Site including Vice President of the K Basins Spent Nuclear Fuels and Closure Projects, responsible for removal of 2100 metric tons of degraded spent nuclear fuel and cleanup of highly radioactive sludge from two cold war era spent fuel storage basins. He was responsible for management of the B Reactor, the world's first full-scale nuclear reactor and a national historic landmark. Mark started his career in 1981 as a Reactor Operator at the Fast Flux Test Facility, a 400 MWt liquid metal cooled fast neutron spectrum reactor and he was the on-duty Shift Manager giving the order to reduce reactor power from 100% for the final reactor shutdown in 1992.

SIGNIFICANT EXPERIENCE:

Pérès Engineering, LLC, Greenville, SC: PRESIDENT

(May 2022 to present)

Mr. Pérès is currently finishing his Nuclear Engineering PhD dissertation and has started a consulting business supporting nuclear production of clean energy through small modular reactors and micro reactors. Mark’s PhD research at the University of South Carolina includes repowering coal plants and supplying data centers with non-emitting nuclear heat using seismically isolated small modular or microreactors. Mark recently completed coursework focused on Nuclear Safeguards, Radiation Shielding and Vibration and Waves. He has completed required coursework with a 4.0 GPA.

In his consulting role, Mark has provided support to the following clients:

* + - * [Kiewit Nuclear Solutions](https://www.kiewit.com/markets/power/nuclear/) - small modular reactor evaluations
      * Cavendish Nuclear / Department of Energy - technical review of the [MARVEL microreactor](https://www.energy.gov/ne/articles/new-marvel-project-aims-supercharge-microreactor-deployment) at Idaho National Laboratory
      * University of South Carolina – Adjunct Professor teaching [EMCH-552 *Introduction to Nuclear Engineering*](https://www.sc.edu/study/colleges_schools/engineering_and_computing/academics/graduate_programs/nuclear_engineering/index.php)
      * [TerraPraxis](https://www.terrapraxis.org/) - coal plant repowering and Data Center power by nuclear
      * [LucidCatalyst](https://www.lucidcatalyst.com/) - and small and micro reactor technology evaluation
      * [International Atomic Energy Agency](https://www.iaea.org/services/key-programmes/peaceful-uses-initiative) - peaceful uses mission to Ghana, Africa as SME for [Management Systems for Nuclear Facilities](https://www.iaea.org/topics/management-systems)

Kairos Power, Alameda, CA: VICE PRESIDENT, ENGINEERING

(2019 to 2022)

Mr. Pérès served was the Vice President of Engineering at [Kairos Power](https://kairospower.com/). Kairos Power is designing a fluoride salt-cooled high temperature reactor (KP-FHR) with intent to be cost competitive with natural gas in the US electricity market. Mark’s role at Kairos was to lead the engineering team to develop an advanced reactor that 1) works, 2) is safe, 3) is constructible and 4) is economically competitive. Mark was the Program Manager for the $630M [Advanced Reactor Demonstration Program (ARDP) risk reduction project](https://www.energy.gov/ne/articles/energy-departments-advanced-reactor-demonstration-program-awards-30-million-initial) awarded from the US Department of Energy (DOE) under DE-FOA-0002271. Mark served as the key leader in preparing design engineering documentation for the [Hermes Test Reactor](https://www.nrc.gov/reactors/non-power/new-facility-licensing/hermes-kairos.html) enabling a construction permit application to the US Nuclear Regulatory Commission (NRC) under 10CFR50 (Docket Number 99902069). Mark was also the primary interface for the company with the Electrical Power Research Institute [Advanced Nuclear Technology Program](https://www.epri.com/research/programs/065093) and the [Construction Industry Institute](https://www.construction-institute.org/).

Fluor Nuclear Power, Greenville, SC: EXECUTIVE PROJECT DIRECTOR

(2009 to 2019)

Mr. Pérès recently served as the Division Director of Major Project Delivery at [Los Alamos National Laboratory](https://www.lanl.gov/). In this role he was responsible for a portfolio of projects with a total estimated cost of $7B. Prior to LANL, Mark was the Project Director for [Fluor’s engineering, procurement and construction support](http://www.fluor.com/projects/nuscale-power-small-modular-reactor-nuclear) to NuScale Power, responsible for all support services provided to NuScale by Fluor. Mark supported [NuScale Power](http://www.nuscalepower.com/) from 2011-2018 in various leadership roles including NSSS Manager, Design Director, Vice President of Engineering, and Director of Engineering Design Certification Application Completion. He was responsible for completion of required engineering to submit a [Design Certification Application](https://www.nrc.gov/reactors/new-reactors/smr/licensing-activities/nuscale.html) under 10CFR52 Subpart B to the US NRC. The NuScale Small Modular Reactor (SMR) is a first-of-a-kind, passively safe, iPWR nuclear reactor design, and is the first modern SMR to be certified by the NRC (as a 50 MWe module).

Fluor Government Group, Richland WA (2004 - 2009): VICE PRESIDENT, EXECUTIVE PROJECT DIRECTOR

(2008 to 2009)

Mr. Pérès was the Vice President of the Fluor Hanford Richland Operations Center, responsible for all engineering, project management, and construction programs at Fluor’s [Hanford](https://www.youtube.com/user/HanfordSite) Project. He was also responsible for management of the world’s [first full-scale nuclear reactor](https://www.youtube.com/watch?v=6pqE1b3pfOY) (the [B Reactor](http://www.hanford.gov/page.cfm/BReactor)) and implementation of public tours on behalf of the Department of Energy (DOE). In addition, Mark served as Director of Project Operations for Fluor’s Environmental/Nuclear business line with responsibility for the Plateau Remediation subcontract, and the Mission Support, [Tank Waste](https://www.hanford.gov/page.cfm/TankFarms) Operations and [Pacific Northwest National Laboratory](http://www.pnl.gov/) (PNNL) contracts. He held Environmental/Nuclear Operations functional responsibility as subject matter expert for Project Management in Fluor’s Government Group. As the 13-year, $9.5B Fluor Hanford contract ended in the fall of 2009 Mark acted as company president, responsible for a staff of 1800. He also led the initial contract closeout effort as Closeout Project Director for several months. In 2009 Mark made the decision to dedicate the remainder of his career to the advancement of commercial nuclear energy as the best means to reduce climate damage.

(2004 to 2008)

Mr. Pérès was Vice President of the [K Basins Closure Project](https://www.youtube.com/watch?v=ErI-LROOOzc), responsible for leadership and project execution of a $2.5B project to remove spent nuclear fuel and radioactive sludge from cold war era storage basins. Prior to being VP, Mark was Deputy Project Director of the Spent Nuclear Fuel Project, responsible for directing daily operations at four nuclear facilities including [K East and K West Spent Fuel Storage](http://www.hanford.gov/page.cfm/KReactors), Cold Vacuum Drying Facility, and [Canister Storage Building](http://www.hanford.gov/page.cfm/CSB). He held key leadership roles in completing spent fuel removal from the K East Basin via the Fuel Transfer System, removal of spent fuel from the K West Basin via Multi-Canister Overpacks, drying spent fuel in the Cold Vacuum Drying Facility, and cask transport and storage in the Canister Storage Building. As Deputy Vice President, Mark also directed the containerization and removal of highly [radioactive sludge](http://www.hanford.gov/page.cfm/STP) from the K East Basin and consolidation of all sludge into new containers in the K West Basin through a [Hose-In-Hose transfer system](https://www.osti.gov/servlets/purl/922130). Each of the K Basins projects involved construction and commissioning of complex systems in high-hazard environments under strict regulations and rigorous DOE oversight.

At K Basins, Mark provided daily operational direction for staff up to 750 people with annual budget up to $120 million. During his tenure at K Basins, Mark worked to continuously improve safety performance, which supported the award to Fluor Hanford in September 2008 of the National Safety Council’s [Robert W. Campbell award](http://www.campbellaward.org/). The Campbell Award recognizes international organizations that demonstrate how integration of environmental, health and safety management into business operations is a cornerstone of their corporate success.

EnergX, LLC, Richland, WA: VICE PRESIDENT, NORTHWEST REGION

(1998 to 2004)

Mr. Pérès was responsible for personnel management and business development at the Hanford Site and the northwest region. He also provided consulting services to a wide variety of Hanford clients in nuclear facility operations. As a consultant, he filled leadership roles at many Hanford nuclear facilities including:

* Lead Commissioning Engineer for the [Waste Treatment (Vitrification) Plant](http://www.hanfordvitplant.com/).
* Manager of Operations Design Support for the Waste Treatment (Vitrification) Plant.
* Leader of Operational Readiness Review teams at [Plutonium Finishing Plant](http://www.hanford.gov/page.cfm/PFP) and Spent Nuclear Fuel Project.
* Project Manager for Fluor Hanford Integrated Safety Management System (ISMS) site-wide implementation.
* Team Leader on the Hanford Facility Evaluation Board (FEB), providing critical assessment of Hanford Nuclear Facilities – patterned after the US Nuclear Navy Operational Reactor Safeguards Examination (ORSE) program.
* Consultant leading the revision of [Hanford Tank Farm](http://www.hanford.gov/page.cfm/TankFarms) contractor work control processes.
* Project Engineering and Project Management support to a High Level Waste Tank Retrieval Projects.
* Facility Manager and Deputy Project Director at the Hanford Spent Nuclear Fuel Project.

Project Assistance Corporation, Richland, WA: PROJECT MANAGER, EXECUTIVE CONSULTANT

(1996 to 1998)

Mr. Pérès was consultant to various customers on topics associated with nuclear facility performance. He evaluated management systems as a member of the Facility Evaluation Board for Fluor Daniel Hanford Company during several performance-based nuclear facility inspections. These inspections were patterned after the US Navy nuclear Operational Reactor Safeguard Examination (ORSE) program. Mark provided support to PNNL Waste Management and Operational Compliance Program planning. He performed validation of activity based cost estimates prepared for several Department of Energy projects. He developed successful project proposal and planning documents for the PNNL Legacy Waste project, allowing safe remediation of highly radioactive hot cell waste.

Washington State University – Tri Cities, Richland, WA: INSTRUCTOR, MECHANICAL ENGINEERING DEPARTMENT

(1996 to 2008)

Mr. Pérès periodically supported the WSU Mechanical Engineering department as instructor of Engineering Analysis (ME 313), Thermal and Fluids Laboratory (ME 305), and Experimental Design (ME 406) courses. He has instructed students in the use of computer programming tools for finite element analysis, numerical methods, and 3D solid modeling using ANSYS, MathCAD, and SolidWorks. He has also instructed several Mechanical Engineering state licensing examination (PE) review courses through the WSU Continuing Education program. Topics taught include statics, dynamics, hydraulic machinery, fans and ductwork, engineering materials, testing, and the end-of-course comprehensive review of all topics.

Westinghouse Hanford Company, Richland, WA: FACILITY MANAGER, 200 AREA LIQUID EFFLUENT FACILITIES

(1993 to 1996)

Mr. Pérès was project manager responsible for design, construction, commissioning, initial start-up, and operation of the 200 Area [Effluent Treatment Facility](https://www.hanford.gov/page.cfm/LWPF) (Project C-018H) and the 200 Area Treated Effluent Disposal Facility (Project W-049). He held key leadership roles from final design and initial groundbreaking through hot operations. These state-of-the-art facilities treated radioactively contaminated process water in compliance with strict environmental discharge permits. He managed facility construction, commissioning, and turnover. He planned and performed comprehensive start-up activities including project baseline development, organization planning, personnel hiring, design review, safety documentation preparation, startup testing, operator training, environmental permit applications, and Operational Readiness Reviews. He successfully completed two DOE Readiness Reviews for these new liquid waste treatment facilities on first attempt. He then directed a plant staff of over 100 people as the first Facility Manager.

OPERATIONS MANAGEMENT, FAST FLUX TEST FACILITY (FFTF)

(1981 to 1993)

Mr. Pérès was a Reactor Operator, Control Room Supervisor, Plant Supervisor and Shift Operations Manager on operating crews at the [FFTF](http://www.hanford.gov/page.cfm/400AreaFFTF), a 400 MWt sodium metal-cooled fast spectrum test reactor. He was responsible for all aspects of nuclear plant operations including physics testing, refueling, work control, lock and tag, operator training and emergency response. Mark was fully qualified on all FFTF plant systems. He attained qualifications of Reactor Operator, Operations Engineer, Emergency Director, and Refueling Engineer. He scored 100% on his Reactor Operator written exam. He was promoted to Control Room Supervisor at age 25, two months after meeting minimum qualifications. He was a qualified reactor simulator instructor, instructed the FFTF Operations Engineer training courses in heat transfer and fluid flow, and developed a part-time operator program to enable employee pursuit of higher education. He was system expert on Class 1E Electrical, Reactor Containment HVAC, Fuel Storage Facility, and Interim Examination and Maintenance Cell (remote operations hot cell) – responsible for certifying other operators on these systems. Mark was the senior manager on site and Emergency Director during back shifts and gave the order to reduce power from 100% for the final shutdown of the FFTF prior to decommissioning.

EDUCATION:

Currently pursuing PhD in Nuclear Engineering, University of South Carolina (ABD), GPA 4.0

Completed course work: Introduction to Nuclear Engineering 552, Nuclear Fuel Cycle 553, Nuclear Reactor Systems 758, Safety Analysis of Energy Systems 756, Thermal-Hydraulic Design of Nuclear Reactors 754, Advanced Nuclear Engineering 755, Introduction to Nuclear Safeguards 561, Radiation Shielding 757,

Currently enrolled: Vibration and Waves 561.

M.S., Mechanical Engineering, Washington State University (Phi Kappa Phi honors), 1999, GPA 3.97

Topic: *Dynamic Response of Dome Mounted Cantilever Beams in Multi-layered Liquid Storage Tanks*

B.S., Mechanical Engineering, Montana State University, 1981

PROFESSIONAL CERTIFICATIONS:

Washington State Professional Engineer (License 26155)

Certified Project Management Professional (PMP 330293)

Fundamentals of Radiochemistry Certification (Radiochemistry Society)

Human Performance Fundamentals Certification (DOE)

QUALIFICATIONS/TRAINING:

|  |  |
| --- | --- |
| Reactor Operator Qualification | Reactor Simulator Instructor |
| Refueling Engineer Qualification | Nuclear Plant Emergency Director |
| DOE Radiation Worker level II | Hazardous Waste Worker (40 hour) |
| Respirator User (SCBA, PAPR, APR) | Criticality Safety Manager |
| Unreviewed Safety Question Evaluator | DOE Conduct of Operations |
| OCRWM Quality Assurance | Management / Independent Assessment |
| Corrective Action Management | Root Cause Analysis |
| Human Performance Improvement (HPI) | DOE Integrated Safety Management System |

PROFESSIONAL AFFILIATIONS:

American Nuclear Society

Research and Advanced Reactors Standards Committee

Professional Engineering Examination Committee

Nuclear Facilities Standards Committee

Past Working Group Chair, ANS Standards 57.2 & 57.3, design requirements for fuel storage at light water reactors

Electric Power Research Institute

Advanced Nuclear Technology Technical Advisory Committee

Reactor Technology Assessment Guide Technical Advisory Group

Separation of the Nuclear Island and Balance of Plant Projects Technical Advisory Group

American Society of Mechanical Engineers

ASME BPV Section III Executive Strategic Advisory Council (ESAC)

BPV Section III Seismic Steering Committee (SSC)

Project Management Institute

Honor Society of Phi Kappa Phi

Golden Key International Honor Society

PUBLICATIONS:

*RISK-INFORMED DESIGN OF A SEISMIC ISOLATION SYSTEM FOR ADVANCED*

*NUCLEAR POWER PLANTS,* Transactions of the SMiRT *27,* 2024

*Lessons Learned in Operating the Hose-In-Hose System for Transferring Sludge at Hanford’s K Basins*

Waste Management Symposia, Inc. 2008

*A Comparison of Challenges Associated with Sludge Removal, Treatment and Disposal at Several Spent Fuel Storage Locations* Waste Management Symposia, Inc. 2007

CLEARANCES:

Previous US Department of Energy Q and L (inactive)