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IDOM was founded in 1957, with the market and client needs leading IDOM on a path of sustained growth, both in terms of the range of services and resources.

IDOM is one of the leading companies in the market for professional services in engineering, architecture & consulting.

The client is, and always will be, IDOM’s raison d’être. We treat technological development, quality management and continued growth in the scope of services and resources as our tools for providing better service and continued satisfaction of our clients’ needs.

In addition, due to its constitution as a professional association, IDOM values and strongly encourages the personal and professional development of its employees, who are considered the principal assets of the company.

For more than half a century, with more than 5,000 satisfied clients and participation in 17,000 projects, IDOM has been able to maintain its independence from any economic or vested interests.

Technological innovation, being the conversion of knowledge into the improvement or creation of new products and services, is a focus both for improvement within the company’s operations and for our products.
OUR NUCLEAR HERITAGE

Cooling Tower Proposal
Our experience in the nuclear sector has its roots in the early nuclear generation projects in Spain and our association with these projects has continued throughout the lives of these plants. These projects have equipped us with capabilities and experience in the fields of engineering support, industrial architecture, advanced analysis and mechanical, structural and civil engineering design. Our range of services has covered a wide variety of projects from analysis of minor plant and sub-processes through to the turnkey replacement of major systems. Our involvement in the Energhia consortium, providing owner’s engineer services to Fusion for Energy on the ITER fusion project marks a milestone in the development of the nuclear services provided by IDOM.

IDOM can offer both targeted specialist services, working as part of the client’s team and integrated project-based services with a broad scope, applying the full skillbase of IDOM.

Sustainability is a cherished aspect of IDOM’s operations and, capitalising on the knowledge gained from past and present projects, we look forward to assisting our clients in the drive toward a low carbon future.
IDOM began its nuclear activities in the late 70’s and 80’s, participating in the construction of the Nuclear Power Stations at Asco and Vandellos in Spain.

IDOM is accredited to ISO9001, ISO 14001 and OHSAS 18001. We have approved supplier status with the Spanish nuclear clients Nuclenor, Iberdrola Ingeniería y Construcción, Almaraz-Trillo Power Plants (CNAT), with Asco - Vandellos Power Plants (ANAV) and Garoña. IDOM is an active member of both the Spanish and UK nuclear trade associations, Foronuclear and the Nuclear Industry Association.

We have a substantial and highly valued nuclear client base, of which the following bodies are a representative cross-section:

- ABENGOA
- ALMARAZ-TRILLO NUCLEAR POWER PLANTS (CNAT)
- ASCO -VANDELLOS NUCLEAR POWER PLANTS (ANAV)
- CEA - SACLAY
- CENTRE FOR THE DEVELOPMENT OF INDUSTRIAL TECHNOLOGY (CDTI)
- ENDESA
- ENEL
- ENRESA
- ENSA
- Ensa Industrias Avanzadas S.A
- FUSION FOR ENERGY (F4E)
- GAROÑA NUCLEAR POWER PLANT (NUCLENOR)
- GENERAL ELECTRIC
- IBERDROLA S.A. NUCLEAR POWER PLANT COFRENTES
- INTERNATIONAL ATOMIC ENERGY AUTHORITY (IAEA)
- SIEMENS
- WARTSILA DIESEL
- WESTINGHOUSE
SITE ASSESSMENT

IDOM has a wealth of experience in the analysis of sensitive and complex development sites.

Getting the right information and advice at the right point in the development process is key to the success of a nuclear facility. By working closely with the client, IDOM’s aim is to work in a fully project integrated way, to assist in decision making and programming and thereby to provide information and support which fits the project’s needs.

SITE INVESTIGATION

We can offer the full range of site assessment services, from preliminary, desk based environmental studies to highly detailed investigations including geological appraisal and soil, groundwater and air quality analysis, engineering properties of the ground and computer modelling of risks. IDOM’s specialisms in studying flood risk, seismic hazard and other external events are pivotal to the initial site assessment process.

Such studies enable the early identification of potential constraints on the way a site can be utilised and allow the client to plan to mitigate the constraints and to adapt engineering designs to suit the nature of the site.

MITIGATION

Where potential constraints are identified we can design mitigating measures including:

- Risk management systems
- Soil and groundwater contamination remediation schemes
- Ground improvement to address poor ground engineering properties
- Land and watercourse restoration schemes
- Flood mitigation measures
- Engineering design to withstand seismic requirements

APPLICATION

- Initial land and asset development feasibility assessments
- Liability analysis for prospective land owners, funders and insurers
- Base information for preparation of safety cases and licence applications
- Design basis data for engineering designs of new facilities or plant modifications
- Risk analysis for new facilities and operational changes
- Risk analysis for decommissioning works
PLANNING, SUPPORT AND SAFETY

MAKING THE CASE FOR PROGRESS

The regulatory demand to analyse and justify proposals for new major facilities has never been stronger. Operators of nuclear facilities are faced with a requirement to provide comprehensive and integrated studies from an extensive consultancy team to underpin applications to regulators. Whether the consent being sought is for a new build project or for modifications to existing facilities, IDOM can provide a broad range of technical advice and can co-ordinate the overall consultancy team.

PUBLIC CONCERN ABOUT THE SAFETY OF NUCLEAR POWER PLANTS DEMANDS A REASSURING RESPONSE FROM THE ENGINEER

IDOM HAS THE BREADTH OF EXPERIENCE AND DEPTH OF KNOWLEDGE TO MAKE A SUSTAINABLE CASE TO REGULATORS

FOCUSED AND OBJECTIVE STUDIES PROVIDING THE RIGHT INFORMATION TO UNDERPIN DESIGN AND PLANNING PROCESSES
SAFETY ANALYSIS AND SAFETY CASES

New facilities and operations and changes to those already existing require detailed analysis to ensure that the necessary standards of safety are achieved. IDOM can prepare safety cases covering all phases of the plant’s development, operation and post-operational activities. Safety case services comprise:

- System characterisation
- Radiological risk assessment and shielding design
- Fault tree analysis and defence-in depth assessment
- Safety system implementation measures and emergency plans

Safety cases must be regularly reviewed and updated to ensure they remain current and valid and reflect best practice. IDOM can provide assistance to existing nuclear facility operators in providing an objective review of current safety cases.

APPLICATION

- Planning negotiations for new facilities or changes to existing facilities
- Regulatory approvals for new or modified operations
- Preliminary, Pre-Construction and Pre-Operational Safety Reports
- Periodic safety reviews
- Activity-specific decommissioning safety cases

ENVIRONMENTAL IMPACT ASSESSMENT

IDOM can provide high quality technical assessments and project management services throughout the environmental impact assessment process, covering:

- Initial site analysis and baseline studies
- Scoping advice
- Identification of potential impacts
- Significance analysis
- Mitigation proposals
- Residual impact evaluation
- Monitoring proposals
- Preparation of Environmental Statement and regulatory negotiations

In the case of proposals being subject to planning inquiry IDOM can provide the necessary technical support to the legal team including preparation of Proof of Evidence, technical advice and expert witness testimony.
SUPPLY OF ENGINEERING SERVICES THROUGH ALL STAGES OF THE NUCLEAR PLANT LIFE CYCLE

IDOM has established an outstanding reputation in the supply of world-leading engineering design services. IDOM provides complete life cycle engineering solutions from initial conceptual design through to complete specifications, design, development, testing and provision of lifetime technical support.

IDOM is currently providing engineering services to all operating nuclear plants in Spain and to other international power plants by modifying systems, developing new engineering solutions and as part of our civil, structural, mechanical, I & C and electrical services.

ENGINEERING DESIGN

CONCEPTUAL DESIGN
Development of conceptual and basic designs using the client’s initial brief, including:
- Design basis
- Process definition
- General layout
- Regulatory framework

PROCESS ENGINEERING
Definition of the system parameters and requirements of the structures, equipment and components, including:
- Process and instrumentation diagrams
- Functional calculations, mass and energy balances
- Equipment data sheets
- Performance calculations to assess efficiency and parameters for the interface of modifications with existing plant.

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CIVIL AND STRUCTURAL DESIGN
Our civil and structural engineering design services include:
- Design from feasibility to detailed design
- Inspection and structural review of existing facilities
- Seismic design assessment
- Seismic qualification

Since 2000 IDOM has been performing specialised technical consultancy in seismic safety, explosion protection, environmental stress (wind, barometrics, temperature) and impact evaluations.

MECHANICAL ENGINEERING
IDOM’s mechanical design expertise is supported by a multitude of technical and engineering disciplines and specialist personnel. These design activities include:
- System engineering:
  - Process design
  - Detailed engineering design
- Mechanical component specification
- Seismic design verification and validation of components
- Pipe support systems
- Structural flexibility assessment
- Fire resistance and protection
- "Class 3" ventilation system (HVAC)

I&C AND ELECTRICAL DESIGN
IDOM has extensive experience in instrumentation and control, electrical design and implementation in both safety critical and non-safety critical areas. We offer a complete package from design to procurement, and assistance during commissioning at the installation site. Our scope of services includes:
- Plant power supply
- Standby power systems
- Logic diagrams
- Control and wiring schemes
- Instrumentation systems
- Blackout performance analysis

APPLICATION
- Seismic calculations for equipment, components & supports
- Analysis of the structural behaviour of built systems
- New design proposals and modification of systems currently operating in plant
- Hydraulic and thermo-hydraulic process design and evaluation
- Impact analysis
- Upgrade of outdated I&C and electrical systems to new requirements
- Design of new I&C and electrical systems to the client’s requirements
The strength of our architectural practice comes from the quality of our team, our desire to innovate and the diversity of our experience.

IDOM’s architectural practice, ACXT, is one of the largest practices in Europe, in which more than 150 architects work with the support of our multidisciplinary team of engineers.

The fertile relationship between these two areas – architecture and engineering – within a closely integrated project team enables us to maximise synergies between the world of ideas and the world of technology.

In order to maximise this effect we aim to develop the best possible understanding of our clients’ requirements, with the objective of providing them with a truly integrated service. The progress attained in this field has allowed ACXT to take part in some of the most demanding and complex projects in modern architecture.

The January 2010 issue of BD World Architecture’s Annual Survey, a British publication ranking the top one hundred architecture firms in the world, placed ACXT 37th, up ten on the previous year.
DESIGN

Our team has a wealth of experience in the design and commissioning of development projects in the public, commercial and industrial sectors. As with all of IDOM’s services, the starting point is to develop a comprehensive understanding of the client’s needs and then to use this to assemble a framework of performance requirements, both in terms of form and function. The evolution of the design is then executed in close co-operation with the client.

Whether the requirement is for a ‘low-key’ service building or for an architectural statement visitor centre, IDOM will apply the highest degree of diligence and commitment to fulfilling the needs of the project.

BUILDING & PROJECT MANAGEMENT

IDOM offers technical support and consulting services in all aspects of the definition and construction of a building and from the initial project stage to its construction.

Grouped in work teams in accordance with the main technical areas i.e. construction systems, sub-structure systems, energy systems and cost control, IDOM’s architecture team has the necessary specialisms to advise on, develop or supervise projects and to collaborate effectively with the client’s project team.

ENERGY EFFICIENCY

IDOM has the necessary tools and skillbase for the study of the energy efficiency of buildings and for computational simulations, including various types of façade, heating systems, air-conditioning, natural ventilation systems etc.

DESIGN DEVELOPMENT

IDOM will collaborate with its clients in the development and supervision of projects drawn up by other architects, respecting the original design and adding solutions that range from the integrated management of projects to compliance with regulations, energy efficiency studies, structural calculations, etc.

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AT THE END OF 2009
IDOM SUCCESSFULLY COMPLETED THE DESIGN AND CONSTRUCTION OF THE NEW CONTROLLED AREA ACCESS BUILDING AT COFRENTE NUCLEAR POWER PLANT (NPP)
MASTERPLANNING

Our interdisciplinary project teams can provide both conceptual and fully developed designs to the client’s requirements, specialising in projects which require a holistic approach. This ability is engendered by the diversity of our technical expertise as we are able to bring together resources in Architecture, Transport and Civil Engineering Planning, Energy, Telecommunications, the Environment, Regional Development and Safety to serve our client’s needs.

IDOM provides innovative and integrated solutions that combine the concepts of strategic planning, sustainable development and the co-ordination of public-private projects.

Idom’s architecture team has developed a masterplan design in response to a call for proposals for improvements at a nuclear power plant. Our proposals included an innovative reception centre with panoramic views, a revised highways system, technical services and training facilities and proposals for aesthetic improvements to the principal existing buildings.

This scheme balanced the technical needs of the highway and access control functions and the technical facilities with environmental performance and local features such as the nearby main railway line.
ENSURING THE COMPLETION OF CONSTRUCTION PROJECTS IN ACCORDANCE WITH REGULATORY REQUIREMENTS

We aim to get construction projects right from the start by ensuring that all civil works documents, designs, specifications, contracts, schedules, budgets, as-built drawings and other deliverables are in total compliance with our Client’s objectives.

IDOM provides site management, technical assistance to the owner’s engineering team, project management, engineering, procurement, and construction related services to support the design. We have undertaken the development of site conceptual designs, site layout plans, project execution plans, project estimates, and master schedules for many nuclear power plant projects. Equally important is the process of integration of project details into site documentation and maintenance regimes.

We also maintain our focus on implementing, updating and developing quality assurance systems and procedures which are geared to the needs of our clients’ nuclear projects.

SERIDOM IS A DIVISION OF IDOM WHICH PROVIDES INTEGRATED PROJECT REALIZATION TO OUR CUSTOMERS IN ALL OF OUR FIELDS OF ACTIVITY, TAKING RESPONSIBILITY FOR TECHNICAL AND COMMERCIAL MATTERS

PROJECT AND CONSTRUCTION MANAGEMENT

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PROJECT MANAGEMENT

We provide a high quality Project Management Service that can be tailored for any size or kind of project. The principal elements of the service described below can be provided individually or as an integrated suite of services:

Purchasing Management
We can provide a part or whole project purchasing service, on behalf of the client, including:
- Purchasing planning
- Purchasing specifications
- Tendering process
- Tender assessment
- Supplier appointment
- Cost control

Construction Management
IDOM can oversee and co-ordinate contractors, to ensure that civil construction works and equipment installation are performed in accordance with the contract terms and to the highest safety and quality standards, while achieving cost and programme objectives, including:
- Oversight of site contractors
- Construction planning development
- Co-ordination of site activities
- Budget and planning control
- Ensuring compliance with safety and environmental targets

Commissioning
IDOM has the capability and experience to manage the commissioning of equipment and systems, including:
- Commissioning planning
- Formulation of start up procedures
- Co-ordination and oversight of suppliers’ commissioning activities

Decommissioning
IDOM can assist with decommissioning projects in the following areas:
- Decommissioning planning
- ‘Design to decommission’ of new facilities
- Co-ordination and supervision of construction of new facilities for decommissioning projects in accordance with ALARP criteria
- Management of conventional systems decommissioning

Management of decontamination works and decommissioning of nuclear systems
- Waste management, classification and dose characterisation advice
- Design of restoration schemes

Project Closure
IDOM will manage the finalisation of the project including:
- As built records
- Integration of the works into site documentation
- Revision of records for interfacing systems
- Final system documentation
- Integration into operation

IDOM, within the Energhia consortium, is supplying technical assistance to the European Domestic Agency (F4E) in the design and construction phase of the ITER complex.
TURNKEY PROJECTS

IDOM’s turnkey business, SERIDOM, has a broad range of experience in the management of turnkey projects from conceptual design to full integration into operation, including the following principal elements:

- Conceptual design
- Project management
- Engineering design
- Purchasing management
- Material logistics
- Construction management
- Commissioning

In 2010 SERIDOM successfully concluded the project management of the Essential Water System (ultimate heat sink) replacement project at Vandellos II NPP. This project was one of the most challenging nuclear design modification projects in Spain and construction was completed in 2009 after a 4 year construction period including 330,000 engineering man-hours. In the first phase the heat sinks for the emergency diesels and control room ventilation system were modified from sea water heat sinks to closed circuits cooled by heat exchangers. In the second phase the heat sink for the essential water services system was augmented with a new closed circuit heat sink including a 30,000 cubic metre cooling water pool. This complex project involved extensive forward design and planning to enable the new systems to be integrated into the existing plant while creating minimum disruption to operations and at all times maintaining safe operating conditions.

APPLICATION

- Design and installation of new facilities
- Design and installation of new buildings and systems into existing plant
- Support and technical assistance to the owner’s engineering team in the design and construction phases for new facilities
- Providing flexible resourcing to engineering management teams from a pool of high quality engineers to meet the changing needs during the development of the project

IDOM has completed a turnkey project to modify the ultimate heat sink at Vandellos II.
The regulatory requirements associated with the nuclear industry create significant challenges for site licensees. With a clear and detailed understanding of the regulatory process that must be complied with, IDOM can provide clients with ongoing support in compliance activities.

Consultancy services provided by IDOM include:
- Regulatory support assessment
- Plant life management (PLIM)
- Plant life extension (PLEX) analysis
- Generation support services

The Technofusion Complex, Madrid, collaborating on the ITER project. Architect: ACX
LIFETIME MANAGEMENT

Lifetime management requires continuous, systematic monitoring of the condition and technological ageing of components.

IDOM offers services in the systematic life cycle management of power plants which include:

- Ageing management (Scoping & Screening, Ageing Management Reviews, Ageing Management Programmes)
- Time limited ageing analysis (TLAA)
- Licence renewal application

These services enable the optimisation of maintenance effort and provide valuable information to support life extension applications.

Since 2002 IDOM has been upgrading the ageing management programmes for a number of nuclear plants in Spain including Santa María de Garoña, Asco I, Asco II, Vandellos II, Almaraz I, Almaraz II and Trillo, according to 10CFR54, NUREG 1800 and NUREG 1801.

IDOM is proud of its major role in providing the necessary regulatory approved documentation for the licence renewal of Santa Maria de Garoña NPP.

ADVANCED ANALYSIS

IDOM offers high quality computational analysis support both as an integrated service within other engineering studies and as a stand-alone service to other engineering companies and operators. Our capability in this field is highly developed and complex analysis techniques can be applied to a wide range of scenarios using our knowledge and our innovative approach. Some of the more common applications are:

- Computational fluid dynamics (CFD)
- Non-linear stress analyses:
  - Seismic
  - Explosion
  - Impact evaluations
- Environmental stress
- Investigation of pathologies
- Forensic engineering
- Thermal modelling
- Hydraulic modelling
- Pipe flexibility

These analyses allow IDOM to deliver high integrity design solutions, provide complete life cycle support and meet the individual needs of our clients from day one.

IDOM has the necessary skill and expertise to respond to technical challenges using, amongst others, the following technical software: SAP, ANSYS, ABAQUS, CAESAR, CIVILFEM, WinSSI, CATIA, FLUENT, IMPULSE, FATHOM, GOTHIC, CoolPack, LS-DYNA, PAM-CRASH, MCNPX, and PHITS.
OPERATION AND MAINTENANCE SUPPORT SERVICES

We have proven experience in helping operators achieve optimal plant safety and performance by contributing to operations through:

• Inspection services
• Testing and commissioning
• Operating staff training
• Purchasing management
• Operating experience (OE) evaluation
• Administration of decommissioning activities

IDOM can successfully service these needs with permanent integrated engineering teams embedded within the clients’ organisations.

APPLICATION

• Dose calculation and shielding design
• Regulatory compliance assessment
• Hydraulic and thermo-hydraulic analysis and modelling
• Production engineering
• Supplying technical assistance to the client in operational and maintenance support
• Preparation for licence renewal
• Ageing management and review
• Life extension