

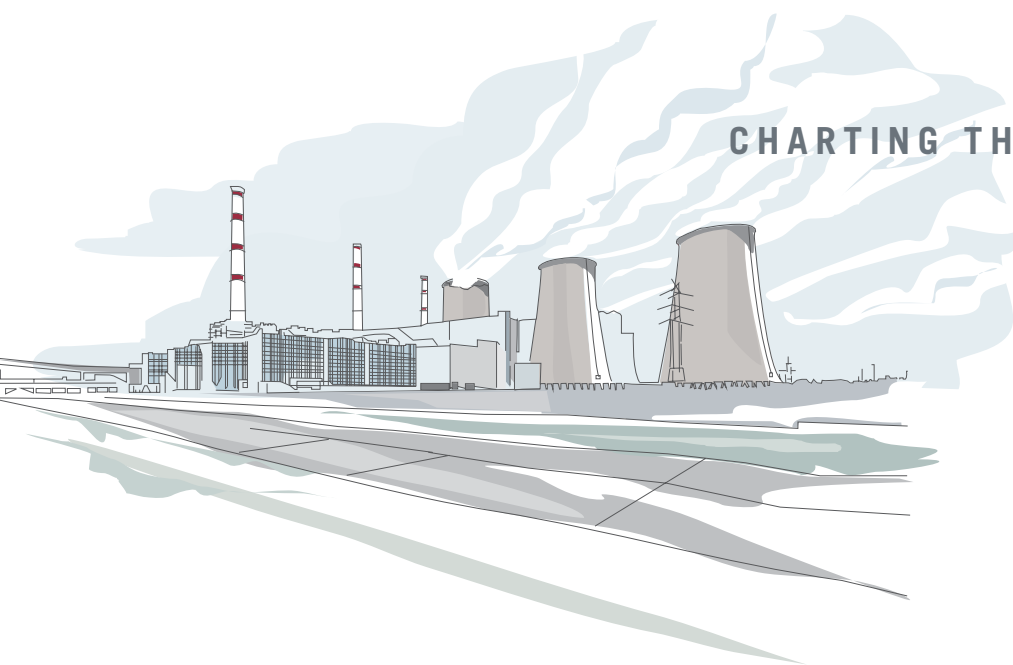


1985-2010

25

YEARS OF  
EXCELLENCE

CHARTING THE COURSE OF *SUCCESS...*



SERVICES CORPORATION  
NUCLEAR ENGINEERING CONSULTING



## MISSION STATEMENT

**EXCEL's** mission is to provide the highest quality professional services to our clients and the nuclear industry. **EXCEL's** focus is the resolution of technical, safety, and regulatory issues to support our clients in achieving the greatest level of safety and performance in nuclear facility operations in the most cost effective manner.



## CORPORATE OVERVIEW

**EXCEL Services Corporation** was founded in 1985 to provide specialized professional services to nuclear utilities in the areas of licensing and regulatory support and Technical Specifications.

Since its founding, **EXCEL** has become recognized as the premier supplier of licensing, regulatory compliance, and Technical Specification services, and has extensive experience in successful negotiations regarding licensing and Technical Specification issues. From a small, focused, specialty consulting organization, **EXCEL** has evolved into a broad organization with the ability to supply the right professionals for any task requiring the best in technical support or engineering expertise and thus **EXCEL** has become the premier licensing support company in the U.S. market.

**EXCEL's** team is available to solve complex operational, engineering, safety and regulatory issues, and to provide consultations to senior utility executives and committees striving to maintain and enhance the quality and safety of their organizations. **EXCEL** also provides these operational, safety and regulatory services to U.S. and International regulatory agencies (e.g., Sweden, Finland, Mexico, Australia, etc). These services have proven to be beneficial to the nuclear facilities and the regulatory agencies.

The associates of **EXCEL** bring a broad and diverse licensing background. Our associates provide an extensive resource pool of licensing engineers, including former supervisors and managers, as well as backgrounds in disciplines that include extensive licensing applications, such as Operations, Project Management, Engineering, Maintenance, Quality Assurance, Emergency Planning, and others.

**EXCEL** includes an ever-expanding group of top quality people and almost certainly has an individual that can meet any client's current challenges (this capability has been enhanced by **EXCEL's** unique business model and flexible organization).

**EXCEL's** first clients were provided with experienced individuals to support general operating plant licensing issues at Fermi, and to support the initial licensing of new power plants such as Limerick. These types of licensing support efforts continue to play a major role in **EXCEL's** activities, including initial licensing activities such as the Clinton Early Site Permit (ESP) for nuclear new build, and the National Enrichment Facility (URENCO LES Plant in New Mexico). Currently, **EXCEL** has a similar assignment for the new AREVA Enrichment Plant in the U.S. (Eagle Rock Plant in Idaho). In addition, **EXCEL** has a long history of working on UFSAR projects for operating plants and has been extensively involved in supporting UFSAR validation programs in response to the letters issued by the NRC regarding 10 CFR 50.54f. **EXCEL's** expertise in the development of large scale licensing documents is directly applicable to these complex and detail-oriented projects, and provides an understanding of end-use for the licensing documents that feeds back directly into the initial development.

**EXCEL** professionals have participated in and managed construction of, start-up, operations, and regulatory compliance activities in every phase and form of nuclear applications. These applications include BWRs, PWRs, CANDUs and HTGRs for commercial nuclear plants, test and research reactors, and DOE facilities and projects. **EXCEL** is aggressively supporting the development of the licensing processes and programs for Early Site Permits (ESP) and COLAs in the U.S. and is also supporting the development of processes to enhance conduct of operations and safety culture at nuclear facilities.



## IMPROVED STANDARD TECHNICAL SPECIFICATIONS

One of the most significant developments in the U.S. nuclear industry was the development and introduction of standardized Improved Technical Specifications (ITS) beginning in the early 1990's. **EXCEL** developed the ITS platform and handled its implementation ever since. **EXCEL's** current activities in the area of ITS are:

1. PWROG Licensing Subcommittee
2. BWROG Technical Specification Issues Coordination Committee
3. Technical Coordinator of the Technical Specification Task Force (TSTF)
4. TSTF representative to NEI License Amendment Task Force (LATF) and the Risk Informed Technical Specification Task Force (RITSTF)

5. Support of numerous other NEI task forces
6. Manages the industry process for continuous improvement of the ITS

Due to the enormous success of ITS, **EXCEL** has become best known for its expertise in the area of ITS Conversions. This has led to a very unique position for **EXCEL**. Currently, 75 out of 104 U.S. plants have been converted to ITS, and several are in progress. Importantly, all U.S. new build NPPs will be using ITS (i.e., **EXCEL** is supporting ITS for AP1000, ABWR, ESBWR, U.S. EPR, and Mitsubishi U.S. APWR). ITS will also be used outside the U.S. by AREVA, Toshiba/Westinghouse, GE-Hitachi and Mitsubishi. In addition, **EXCEL** is currently supporting the development and licensing of ITS for the very first AREVA EPR Plant (OL-3 in Finland), including training of trainers.

## EXCEL'S ENRICHMENT FACILITY LICENSING SUPPORT IN U.S.

**EXCEL's** Enrichment Facility Licensing experience includes the following ongoing activities:

- Review of TSR (Safety Analysis Report and Technical Specifications) and design analysis for old/new Uranium Enrichment plants:
  - USEC GDP (Gaseous Diffusion Plants)
  - USEC ACP (American Centrifuge Plant)
- Licensing Management of U.S. National Enrichment Facility (NEF) in New Mexico (owned by URENCO/LES II). Providing support in licensing and regulatory, training, programs and procedures and engineering for the new NEF. This is actually the 1st COL approval issued by U.S. NRC under the new Part 52 rules.
- Currently **EXCEL** is supporting AREVA's U.S. Enrichment Project (Eagle Rock Plant in Idaho). Providing support in licensing, regulatory, training, engineering and programs and procedures.



## INDUSTRY PARTICIPATION

**EXCEL** is a valued participant in leadership, policy making, and problem-solving groups that serve the nuclear industry community in the U.S. and Europe, including:

- Joint Owner's Group Technical Specification Task Force
- PWROG ITS Working Group and Licensing Subcommittee
- BWROG Technical Specification Issues Coordination Committee
- NEI Licensing Action Task Force
- NEI Risk Informed Technical Specifications Task Force
- NEI Licensing Community of Practice (LCOP)
- American Nuclear Society (ANS)
- European Nuclear Society (ENS)
- World Nuclear Association (WNA and Working Groups)
- Energy Facility Contractors Group (EFCOG)
- International Group of Research Reactors (IGORR)
- National Organization of Test, Research, and Training Reactors (TRTR)

In addition, **EXCEL** is the industry leader in helping nuclear facility licensing organizations address new regulations, special improvement programs, and compliance backlog reduction. We lead because of our highest-quality risk and safety analyses and the experience of our top industry professionals. **EXCEL** supports these and other key initiatives in nuclear facility operations:

- Risk informed regulations & technical specifications support
- Plant life extension and license renewal
- Improved technical specifications
- Plant safety evaluations and safety analyses
- Final safety analysis report development and update
- Spent fuel storage facility and dry cask storage projects
- Plant decommissioning
- Nuclear safety and licensing
- Regulatory compliance and support
- Hazards and safety analysis
- Training
- Quality assurance
- Surveillance testing



## EXCEL'S NEW BUILD NPP SUPPORT (DCDS, ESPS AND COLAS)

**EXCEL** is aggressively supporting all U.S. new build vendors and new build utilities or utility groups.

- Early Site Permit (ESP) evaluations for new NPPs:
  - AP1000 (Vogtle)
  - ESBWR (Clinton, North Anna)
- Design Certification Document (DCD) development/revision support for new NPPs:
  - AP1000
  - ABWR
  - ESBWR
  - EPR
  - US APWR

- Combined Operational License (COL) submittals for all new U.S. NPPs:
  - AP1000 (Duke, FP&L, Progress Energy, NUSTART)
  - ABWR (NRG/STP)
  - ESBWR (Dominion, DTE-Fermi, Entergy-River Bend, NUSTART)
  - EPR (UNISTAR - Calvert Cliffs 3, Callaway 2, Nine Mile Pt 3, Bell Bend)
  - Luminant Comanche Peak (MHI APR-1700 project - RI, ITS, Licensing support)



The table below shows the U.S. status as of June 2009.

Company	Site	NPP (#Units)	COL Submittal	EXCEL Activity
Constellation-Unistar	Calvert Cliffs-3 Callaway-2 Bell Bend Nine Mile Point-3 New Plant	EPR (5/6)	Mar 2008 July 2008 Oct 2008 Sept 2008	developed now supporting RAIs
Dominion	North Anna-3	ESBWR (1) New Technology	Nov 2007	supporting
Duke	William States Lee-1/2	AP1000 (2)	Dec 2007	supporting
Entergy	Grand Gulf-3	ESBWR (1)	Feb 2008	supporting
NRG Energy-STPNOC	South Texas-3/4	ABWR (2)	Sep 2007	supporting
Progress Energy	Harris-2/3	AP1000 (2)	Feb 2008	supporting
SC Electric & Gas	VC Summer-2/3	AP1000 (2)	Mar 2008	supporting
Southern Co	Vogtle-3/4	AP1000 (2)	Mar 2008	supporting
TVA	Bellafonte-3/4	AP1000 (2)	Oct 2007	supporting

## ENGINEERING SERVICES

**EXCEL's** Engineering Services is a logical extension of our extensive Licensing Amendment Request Services product area. To successfully complete LAR's such as Power Uprate and 24-Month Fuel Cycle Extension, **EXCEL** has developed the engineering skills which will guarantee that the supporting evaluations and calculations are of the same high quality as our LAR documents. **EXCEL's** demonstrated Engineering Services capabilities include:

- Performance of Instrument Drift Analysis Calculations (manufacturer, make, model number) for Surveillance Interval Extension.
- Development of setpoint calculations for Design Basis Reconstitution, initial plant licensing, Steam Generator Replacement, Technical Specification Revisions, Fuel Cycle Extension.
- Performance of Surveillance Test Failure Analysis (Failure Modes and Effects Analysis (FMEA) and root cause analysis) and associated justifications.
- Performance of Preventative Maintenance Task Analyses and justifications for extension.
- Evaluation of Fleet and Plant Configuration Management programs
- Development of fleet or plant setpoint methodologies, setpoint control programs, trending programs and safety related software for analysis.
- 24 Month Fuel Cycle Interval (GL-91-04) Extension Experience
- Extended Power Uprate

## INTERNATIONAL EXPERIENCE

### Argentina

Evaluation of Embalse CANDU-6 refurbishment project for a Bank (CAF)

### ANSTO / Australia

Licensing, Tech Specs, Training and Startup support for the new state of the art research reactor (OPAL)

### Bulgaria

Support of Belene VVER1000 nuclear new build project

### Canada

Technical & regulatory support for restart of OPG/Pickering

Technical & regulatory support to AECL for ACR-1000 in Canada and worldwide

### Finland

TVO/OL-3 EPR Licensing documents and ITS review support (incl. training)

Planned OL-4 development support (incl. plant specifications, ASME/RCC-M codes & standards review vs Finnish YVL guides)

Fennovoima new build project support

FORTUM/Loviisa-3 new build support (Best Financing / Contracting Practices)

### Germany

Pilot ITS project with E.ON to convert German NPP's to ITS

### IAEA

Development of Nuclear Knowledge Management (NKM) Guide (in print 2010)

Development of Nuclear New Build (NNB) Guide for emerging nuclear countries

### Japan

Support introduction of maintenance fuel cycle extension to 18-24 months

### Mexico

Contracted with Regulatory Authority (CNSNS) to support all areas of licensing of Laguna Verde Unit-1

### Netherlands

Support of DD effort of utility (and nuclear plant Borssele) takeover

### Russia

Introduced regulatory initiatives to improve safety and performance of nuclear sites

### South Africa /Koeberg

Provided Technical and Regulatory support for development of K-SAR

Establishment of processes for control of Licensing and Design Bases information

Configuration control for Design Bases information

Support of ESKOM/Nuclear-1 Bid Evaluation

### South Africa /PBMR

Analysis of PBMR Safety Case Compliance with South African Regulations

Development of Compliance Matrix Analysis Tool

Support of PBMR Fuel Manufacturing Plant Licensing

Regulatory Training and Mentoring for PBMR Staff

Development of Procedures and Documents in support of PBMR Regulatory Processes

Support South African and International licensing of PBMR

Senior Executive level council and guidance on regulatory matters

Review of PBMR Safety Case and Licensing Application

### Sweden

Licensing and regulatory support for Swedish Authority – Seminars and Information and Research and Reports

Licensing and regulatory, engineering and technical support for Swedish nuclear plants Forsmark, Ringhals, Oskarshamn and Barsebäck (decommissioning)

Support of Vattenfall nuclear new build program in Sweden and UK

### Switzerland

Review and support of RESUN (BKW/NOK) EIS/SAR for (2) new build NPP projects

Technology & Economics Evaluation of new build alternatives

Definition of detailed nuclear Site Parameter List

### UAE

Support of Technology & Economical Evaluations of new build alternatives and Prime Contractor selection process

Support of new Regulator (FANR)

### U.K.

Supported development and review of environmental processes for decommissioning and decontamination

Discussions with local vendors & authorities for technical and regulatory support of new build program

Technical assessment of aging AGR Fleet issues [DD Support for BE takeover]

Technical & economical evaluation of UK new build NPP designs related to four major BE sites

Detailed evaluation of (6) NDA sites in UK for nuclear new build projects

UK NII Licensing Seminar Support of Technology & Economical Evaluations of new build alternatives and Vendor selection process for Vattenfall, RWE/E.ON JV (HORIZON)

Support of buildup of nuclear new build project organization in UK

## PROBABILISTIC RISK ASSESSMENT FOR NUCLEAR POWER PLANTS

EXCEL has supported integrated PRA Level 1 and Level 2 modeling support for nuclear power plants with specific emphasis on plant specific risk informed performance based applications, including:

- Facility Hazards Analysis
- Production Availability Analysis
- Risk Informed Asset Management



## LICENSE RENEWAL SERVICES

**EXCEL's** associates have supported 15 License Renewal projects, which have included specific focus on project management, engineering and licensing. Additionally, **EXCEL** has supported the successful recovery efforts of both NMP License Renewal and the Beaver Valley License Renewal project.

**EXCEL's** associates are participating members on various subcommittees and boards which include the following:

- Board Membership on License Renewal Recovery Board responsible for review and approval for all License Renewal Application changes and responses to NRC Requests for Additional Information (RAI's). Contribution to the Board License Renewal Experience with other applications and understanding of increased NRC expectations.
- Service on subcommittee for Aging Management Review Sections of License Renewal Application.

In addition, **EXCEL** has performed training and coaching in the following areas:

- Coaching of design department personnel required to obtain for higher quality products than previously received, coordination of product production, and final review of packages for new Non-Safety affecting Safety Related components scope expectations.
- Coaching of utility personnel on production of a higher quality addendums to License Renewal Application to incorporate increased scope and increased consistency with NUREG-1801, "Generic Aging Lessons Learned." Also produced selected addendums, including all Steam and Power Conversion Systems as well as selected Auxiliary Systems.

## NUCLEAR KNOWLEDGE MANAGEMENT

**EXCEL** is establishing a leading business practice - under an IAEA Guide development contract - for Nuclear Knowledge Management (NKM) in cooperation with the International Knowledge Management Institute (KMI). This commercial NKM program for operating NPPs features:

- A certification course in NKM for nuclear industry professionals. This course offers generic KM program instructions as well as unique and specific examples and knowledge resources applying to the nuclear industry. The objective of the CNKM credential is to "jump-start" the utilities toward implementation of their own company-specific NKM program.
- A highly skilled NKM Consulting Group, which is led by KMI-certified nuclear experts from all areas of nuclear business process management within the context of the NKM-informed NEI Standard Nuclear Performance Model.
- An international NKM standards background based on work currently in progress, by the IAEA to develop a Nuclear Power Plant NKM Implementation Guide. This work also features collaboration with many KM experts from around the world as well as the related NKM practices of a global NKM survey and IAEA NPP Site Assist Visit Missions.

- Participation by speaking and working with related nuclear industry Communities of Practices (CoP) to build NKM awareness and breakthroughs for current nuclear fleets as well as Advanced-Design Nuclear Plant consortia. Presentations are delivered at venues such as:

- **IAEA events in Vienna, Austria**
- **Leadership in NKM track education for the industry by development and delivery of a new KM Track in American Nuclear Society events such as the ANS Utility Working Conference, Amelia Island, FL (four NKM sessions and 16 presentations.)**
- **CANDU Reactor Owners Group, Toronto, ON**
- **Nuclear Human Resources Group CoP, FT. Worth, TX**
- **Nuclear Information Management Strategic Leadership, Las Vegas, NV**

- Development and expansion of local KM resources such as the Washington, DC, KM Users Group as well as the establishment of other users groups for certified KM alumni throughout the world.

## EXCEL'S CLIENT LIST

As a source of both knowledge and experience, **EXCEL** holds a unique position in the nuclear industry. Nuclear facility managers and global industry organizations rely on **EXCEL** based on a record of excellence and industry leadership.

Our list of clients includes:

American Electric Power AREVA (USA) Arizona Public Service Company Atomic Energy of Canada Ltd (AECL, Canada) Australian Nuclear Science and Technology Organization (ANSTO) Babcock and Wilcox Owners Group Barsebäck Kraft AB (Sweden) BKW FMB Energie AG (Switzerland) Black and Veatch Boiling Water Reactor Owner's Group (BWROG) British Nuclear Fuels Limited (BNFL) Candesco Corporation (Canada) Central Nuclear Embalse (CNE, Argentina) CH2M Hill Combustion Engineering Owners Group Comisión Federal de Electricidad (Mexico) Connecticut Yankee Constellation Energy Consumers Power Company Corporación Andina de Fomento (CAF) Department of Energy (US DOE) Detroit Edison Company Dominion Kewaunee Dominion Virginia Power Duke Power Company E. ON Kernkraft GmbH (Germany) Electric Power Research Institute (EPRI) Electricite de France (EDF) Emirates Nuclear Energy Corporation (ENEC, UAE) Enercon Energy Northwest Entergy ESKOM (South Africa) Exelon Generation Co. Federal Authority for Nuclear Regulation (FANR, UAE)	Fennovoima Oy (Finland) FirstEnergy Florida Power and Light Forsmarks Kraftgrupp AB (Sweden) Fortum Nuclear Services Ltd (Finland) Framatome Technology, Inc. (FTI) Galson Sciences Ltd (UK) GE-Hitachi Nuclear Energy Houston Lighting and Power Hurst Technologies Indiana Michigan Power Company International Atomic Energy Authority, (IAEA, Austria) International Center for Environmental Safety (ICES) (Minatom of Russia) INVAP (Argentina) Invensys Iowa Electric Power Company Kaiser-Hill Koeberg NPP (South Africa) KPMG, LLP (UK) Louisiana Energy Services (URENCO) Maine Yankee Mott MacDonald (UK) Nebraska Public Power District Nextera Energy Nordic Owners Group (Sweden) NRG Energy Nuclear Energy Institute (NEI) Nuclear Regulatory Commission (US NRC) OKG AB (Sweden) Omaha Public Power District (OPPD) Ontario Hydro (Canada) Ontario Power Generation (Canada) Pacific Northwest Laboratories (PNNL) Pebble Bed Modular Reactor (PBMR) Company (South Africa) Pennsylvania Power Light (PPL) Susquehanna, LLC Pickering Nuclear Generating Station (Canada)	Pressurized Water Reactor Owner's Group (PWROG) Progress Energy Public Service Company of Colorado Public Service Electric and Gas Radiation & Nuclear Safety Authority (STUK, Finland) RESUN AG (Switzerland) Ringhals AB (Sweden) Rochester Gas and Electric Company Rocky Flats Environmental Technology Site Rolls-Royce (Civil Nuclear, UK) Royal Bank Of Scotland (RBS/ABN-AMRO) RWE Power AG (Germany) SKB International Consultants AB (Sweden) South Texas Project Operating Company Southern California Edison (SCE) Southern Nuclear Operating Company Svensk Kärnbränslehantering AB (SKB, Sweden) Swedish Radiation Safety Authority (SSM, Sweden) Tennessee Valley Authority (TVA) Teollisuuden Voima Oyj (Finland) TEPCO (Japan) TXU Electric Union Electric Company UniStar Vattenfall AB Vattenfall Power Consultant AB Westinghouse Electric Company Westinghouse Electric Sweden AB (Sweden) Westinghouse Owner's Group Wisconsin Electric Power Company Wolf Creek Nuclear Operating Corporation Xcel Energy
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