



**EXCEL SERVICES CORPORATION**  
Challenges and Opportunities in New Nuclear Developments

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**Donald R. Hoffman, PhD**

President/CEO, Excel Services Corporation  
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# EXCEL Services Corporation

Your Trusted Partner for Nuclear Excellence



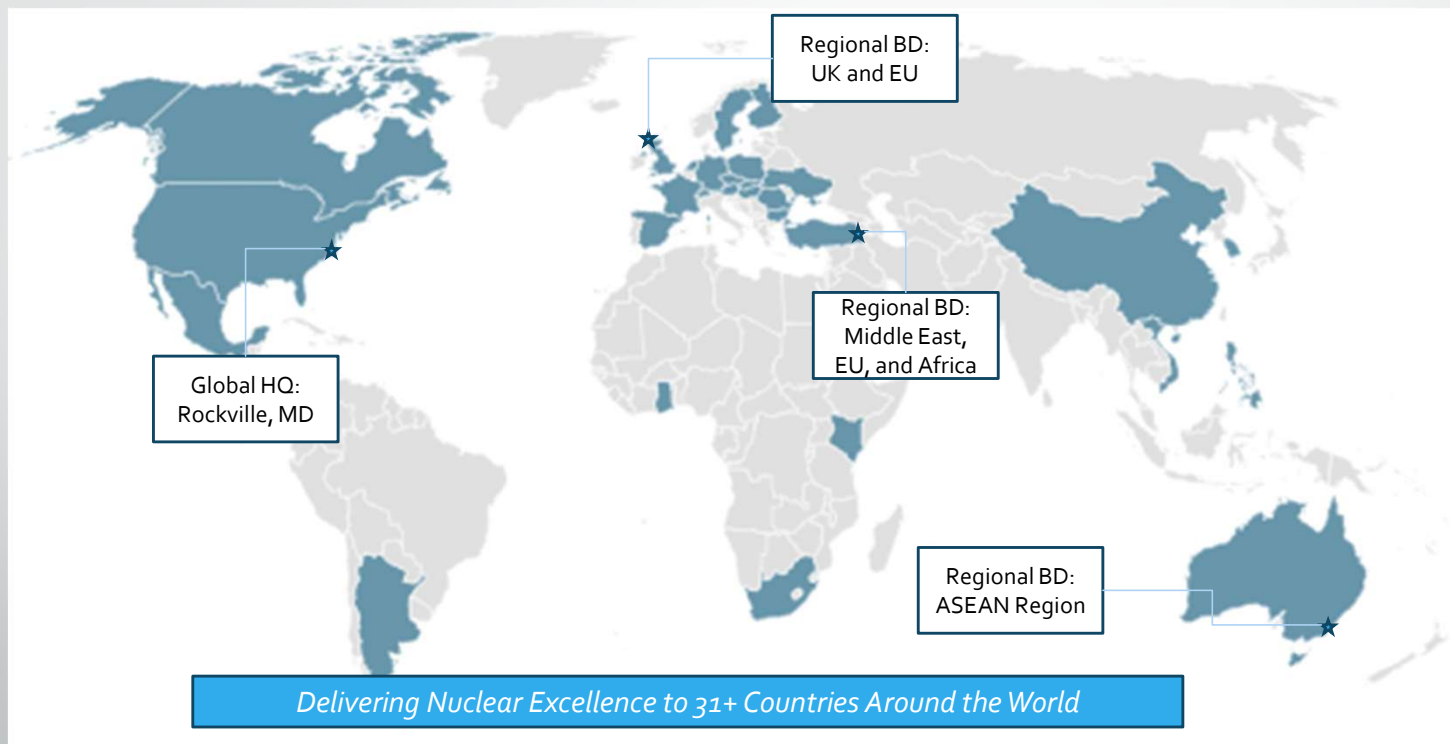
- **Premier US Licensing and Engineering Support**
- **Broad Expertise including Vogtle 3&4 Licensing Lead**
- **Technology Neutral**
- **200+ Associates**
- **31+ Countries Supported**

*EXCEL has the team, methods, and experience to be Your Trusted Partner in developing new nuclear. - Donald R. Hoffman, EXCEL CEO*



# EXCEL Services Corporation

## US and Global Experience to Leverage Best Practices





# EXCEL Services Corporation

Your Trusted Partner for Nuclear Licensing and Development

## New Build

Deliver Strategic Focus

Reduce Development Cost

Technology Neutral Support

## Operating Plants

Enhance Safety and Security

Improve Efficiency and Performance

Reduce Operating Cost

*EXCEL has Broad Expertise and Experience Across the Nuclear Lifecycle*



# EXCEL Services Corporation

## New Build: Supporting the Entire Ecosystem

### Ministry / NEPIO

- Feasibility Studies
- Technology Selection
- Roadmap Development
- Stakeholder Strategy
- Business Case Assessment

### Regulator

- Establish Nuclear Regulatory Authority
- Regulatory Framework Development
- Adapt Existing Framework for New Nuclear
- Supplement Expertise

### Owner/Operator

- Technology Selection
- Applications Analysis
- License Development
- Licensing Interface

### Technology Vendor

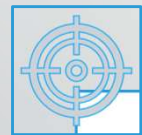
- Design Certification Document / Generic Design Assessment

*EXCEL Delivers Technology Neutral, Strategic Support to Nuclear Deployments*



# EXCEL Services Corporation

## Feasibility Studies: Setting the Foundation for Success



### Strategy

- National Energy Demand and Supply Forecasting
- Assessment of Nuclear in Energy Mix
- Consistency with National Energy Strategy



### Technical

- Technology Selection
- Site Survey
- Environmental Impact
- Grid Integration
- Regulatory Roadmap
- Emergency Planning Zone



### Economic

- Economic Assessment
- Financing Plan
- Offtake Plan
- Risk Assessment
- Project Implementation Plan



### Social






- Stakeholder Engagement Strategy
- Human Resource and Institutional Planning
- Social Impact
- Institutional Gap Analysis

*EXCEL Understands that Each Client Needs Unique Analyses to Advance Nuclear Projects*




# New Nuclear Deployments: Infrastructure Challenges and Opportunities

## Challenges

-  The existing **workforce** has limited nuclear construction experience.
-  Local nuclear grade **supply chain** is underdeveloped and has gaps.
-  Unclear which **project finance** support mechanisms are optimal
-  **Technology selection**: Discerning hype from reality
-  **Social acceptance** of nuclear is unknown

## Opportunities






-  Implement **university sharing** programs to mentor staff until local training system is developed
-  Combine **domestic and international** supply chains
-  Evaluate best practices from **countries advancing construction** including loans, tax credits, etc
-  Determine **key metrics for project success** and engage experts to rank reactor technologies accordingly
-  Start **stakeholder engagement early** to build public trust

*EXCEL Understands the Infrastructure Challenges and Opportunities for New Nuclear*





# New Nuclear Deployments: Regulatory Challenges and Opportunities

## Challenges

-  Existing **legislation** doesn't address power reactors
-  Regulator staff has **limited knowledge** on new nuclear technology
-  No process for considering reviews by **other regulators**
-  Regulator staff has limited staff size to handle **volume** of reviews
-  Regulator **infrastructure** not built for scale and complexity of submittals

## Opportunities

-  Leverage work done by **countries with similar approach**
-  **Training and lessons learned** for international new builds
-  Develop new processes to **evaluate other regulators' efforts** to improve efficiency while maintaining independence
-  Use international experts to **augment and mentor staff**
-  State of the art **electronic processes** can be built to maximize efficiency

*EXCEL Understands the Regulatory Challenges and Opportunities for New Nuclear*



# EXCEL: Worldwide Experience Turning Challenges into Opportunities

## Large Reactor Project Experience

- AP1000 Experience (US)
    - Engineering, licensing, procurement, operations, training and construction
  - APR1400 Experience (UAE)
    - Engineering, licensing, operations, training and construction
  - ERP (US, France, Finland)
    - Licensing, operations, training and construction
- EXCEL has developed global best practices from these efforts
  - We apply the lessons learned to all new build projects, independent of reactor type

EXCEL has broad experience across ALL Large, Small, Micro, and Advanced Reactors



# EXCEL Services Corporation

Your Trusted Partner for Infrastructure Development

## Feasibility Studies for New Nuclear Project Development Support

- Develop strategic roadmaps for supply chain, workforce development, and funding for early gap identification and resolution
- Technology assessments align technology facts with project specific needs
- Apply lessons learned from successful projects to avoid pitfalls
- Begin stakeholder engagement early to understand local concerns and start building public trust

*EXCEL Ensures the Infrastructure is in Place for Project Success*

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# EXCEL Services Corporation

## Your Trusted Partner for Regulator Support

### Converting Research Reactor Regulation to Power Reactors

- Recommendations on Legislation Language
- Recommendations on Implementing Rules and Regulations Approach

### Preparing for New Nuclear Applications

- Training on Advanced Nuclear Technology, including Lessons Learned
- Pre-Application Engagement Planning
- Infrastructure Planning (staffing, technology, processes, standards)
- Regulatory Harmonization and Legal Review to Leverage Other Regulators' Work
- Training Program Development

### Processing New Nuclear Applications

- Develop Project Plan (schedule, structure, responsibilities)
- Technical Review and Mentoring, Leveraging International Lessons Learned and Regulatory Reviews
- Staff Augmentation and Review Participation

*EXCEL Ensures Regulators have the Needed Expertise for Success*



# Turning Challenges into Opportunities

- Deploying new nuclear is a team effort
- Learning from others is key
- EXCEL has the experience to lead you on the journey



Thank you!