UAE Civil Nuclear Power Program
Lessons Learned in the Last 18 months

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International Conference on Human Resource Development for Introducing and Expanding Nuclear Power Programmes

Abu Dhabi - UAE
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Lessons Learned: The Players

Federal Authority for Nuclear Regulation
- Nuclear Regulator in UAE
- Covers All Sectors of Nuclear

Emirates Nuclear Energy Corporation
- Nuclear Power Plant Owner
- Nuclear Power Plant Operator

Khalifa University
- Higher Education Resource Supporting Nuclear
- Scholarship Program
Start Early. You Cannot Start Too Soon.

Learn the Rules and Start Once.

Khalifa University Nuclear Programs Start

First Graduates enter UAE Nuclear Market from International Programs

First Four Year Graduates enter UAE Nuclear Market from UAE Programs

Recruitment and Hiring Execution / National Capacity Building

Start the Process

Unit 1 Commercial Operation


First Graduates enter UAE Nuclear Market from UAE Programs

Technicians In Training For Nuclear Power Program

Illustrative
³ Build Your Team. Include All Aspects of Nuclear.

Commercial

Regulatory

Education

Having the right depth of expertise will build a solid foundation.
4. Develop the Integrated Strategy and the Plan Short Term, Mid-Term and Long Term

**Nuclear Power Program**

- Preparation for Nuclear Power Plant Construction
- Plant Construction and Preparation for Operations
- Nuclear Fleet Operations

| Year | 2008 | 2009 | 2010 | 2012 | 2014 | 2017 | Ongoing |

**Education Strategy**

- **Short term**
  - HR Plan Development
- **Mid-Term**
  - HR Plan Implementation for Construction and Operations
- **Long Term**
  - HR Development for Sustainable Implementation
### Forecast of 2020 Staffing

<table>
<thead>
<tr>
<th>Staff Type</th>
<th>Range</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENEC Corporate Staff</td>
<td>200 to 400</td>
<td>Engineering/Professional 150 to 300</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Administrative/Other 50 to 100</td>
</tr>
<tr>
<td>Nuclear Operator Plant Staff</td>
<td>1100 to 1300</td>
<td>Technicians/Other 800 to 950</td>
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<tr>
<td></td>
<td></td>
<td>Engineering Professional 300 to 350</td>
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<tr>
<td>FANR Staff</td>
<td>135 to 165</td>
<td>Engineering/Professional 135 to 165</td>
</tr>
<tr>
<td>Education Staff</td>
<td>30 to 40</td>
<td>PhD and Masters 30 to 40</td>
</tr>
</tbody>
</table>

Start With As Much Information As Possible

ILLUSTRATIVE
Grow The Organization. (It Is Not All Planning)
Establish The Right Foundation.
7 Collaborate As You Go Forward.

- Strategy and Goals
- Organizational Development
- Recruitment & Scholarships
- Hiring
- Training and Qualification
- Nuclear Safety Culture
Ownership and Commitment

Policy level commitment:
- Statement of Safety policy
- Management Structure
- Resources
- Self-regulation

Managers’ commitment:
- Definitions of responsibilities
- Control of safety practices
- Qualifications and training
- Rewards and sanctions
- Audit, review and comparison

Individuals’ commitment:
- Questioning attitude
- Rigorous and prudent approach
- Communication

SAFETY CULTURE
Lessons Learned. Let’s Review.

1. **Start early.** You cannot start too soon.
2. **Learn the rules.** What are your boundaries, targets, and expectations?
3. **Build your team.** All aspects of the nuclear sector need to participate – education, generation, and regulation.
4. **Develop the strategy and plan** – near term, midterm and long term.
5. **Start with as much information as possible about your program,** or create sound forecasts that provide ample data points to create actionable tactics.
   - Generation: # MWs, # plants, staffing, staffing breakdown, qualifications, etc.
   - Regulator: staffing estimate, types of staff required, qualifications required
   - Education: programs to be implemented, instructional and professorial staff
   - Industry expansion: accommodations or an awareness of the development of secondary lines of business that will require nuclear related human resources
   - Identify local capabilities and resources that are immediately available
6. **Grow the organization,** identify the educational institutions that will be helping you develop your human resources (or have them assigned) and be ready for an increased volume of new students interested in nuclear energy.
7. **Collaborate as you go forward.**