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# PWROG Overview

# PWROG Timeline



1979

## **OEM Owner Groups Form**

Three vendor owner groups form following the Three Mile Island Event: WOG, B&WOG, and CEOG.

2000

## **Westinghouse/CE**

While owned by British Nuclear Fuels of the United Kingdom, Westinghouse purchases CE from ABB to bring two of the original three U.S. based PWR designers under one umbrella.

2002

## **WOG (including CE now)**

Westinghouse and CE owner groups merge to form a new Westinghouse Owners Group (WOG)

2006

## **PWROG**

The WOG partnered with Framatome and the original B&WOG to form the PWROG that exists today

The mission of the PWROG is to improve the competitiveness of member plants through cost-effective resolution of issues common to more than one member and to provide a superior regulatory interface in support of member activities.

# Our Major Focus Areas



## Post-TMI

- ERG Development
- Technical Specifications Improvements
- Use of PRA



## Post-Chernobyl

- Improvements to licensing basis change process
- Generic SAMG development



## 1990-2011

- Risk-informed initiatives
- License extensions
- Cmtt Sump Integrity (GSI-191)
- Reactor vessel integrity



## Post-Fukushima

- FLEX
- Enhanced SAMGs
- Seismic and external flooding re-evaluations

## Examples of Current Industry Issues

- Digital Instrumentation and Control (I&C) Implementation
- Risk-Informed Changes
- Materials Management and Technology
- Plant Modernization
- Flexible Power Ops
- Advanced Technology Fuel
- Supporting 60 & 80 year License Renewals

# PWROG Benefits

Provide common solutions with costs shared globally among members

Provide superior regulatory interface in support of member activities

Rapid response to critical needs (Emergent Issues Group)

International organization, providing global perspective to all solutions

Utilize the expertise of the Boiling Water Reactor Owners Group (BWROG)



Members average greater than **80% implementation** of PWROG deliverables



Project costs are less than **\$6 per engineering hour**

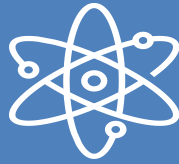


No utility pays more than **13 cents (on the dollar)** of any Generic Project

# PWROG Deliverables



- All PWROG deliverables are in PWROG report format.



- Generic Products are available to all PWROG members



- Cafeteria Products are available to Program participants.



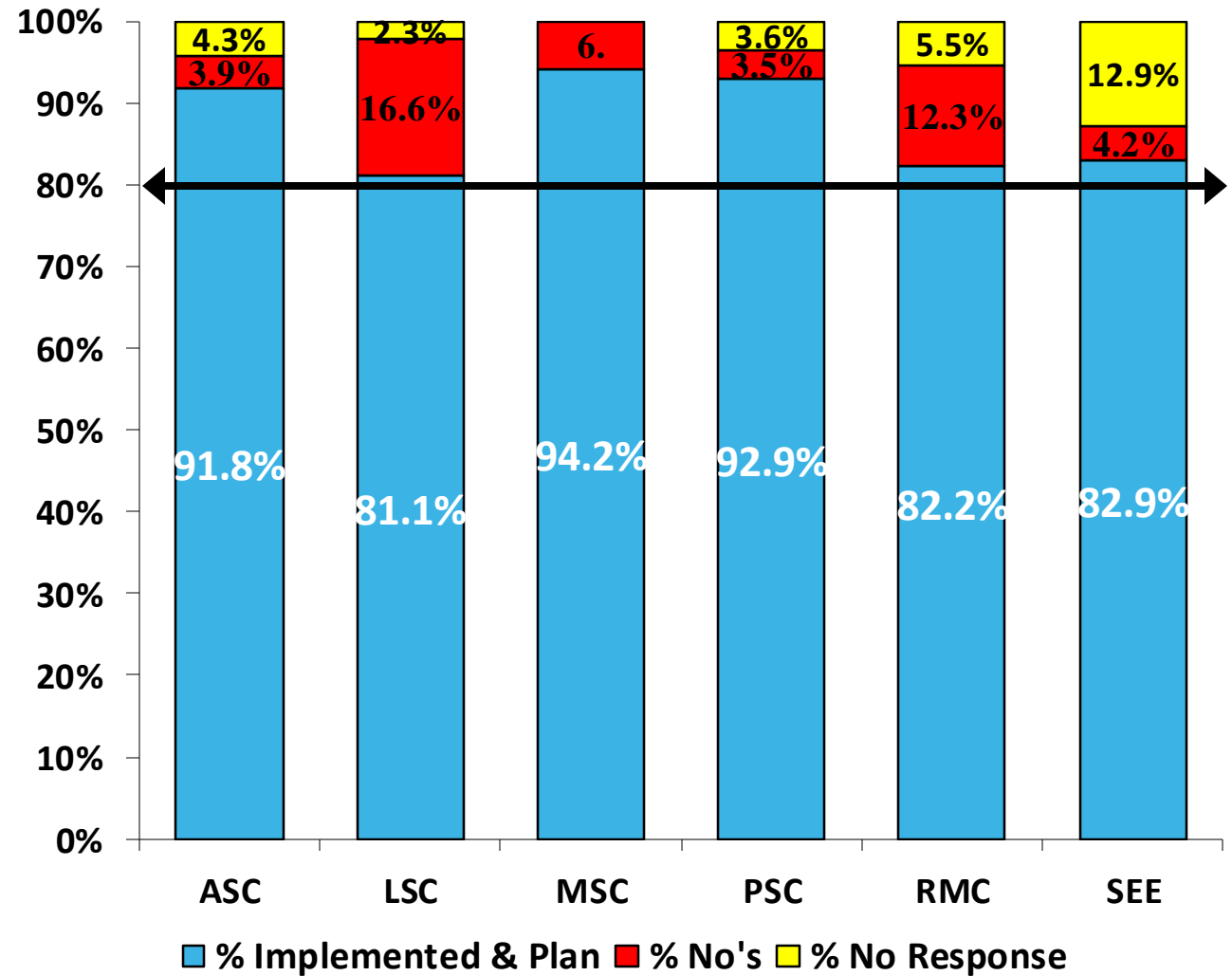
- Deliverables are transmitted to members via the PWROG website – Export Control.



# Key KPI's

- **Product Implementation:**

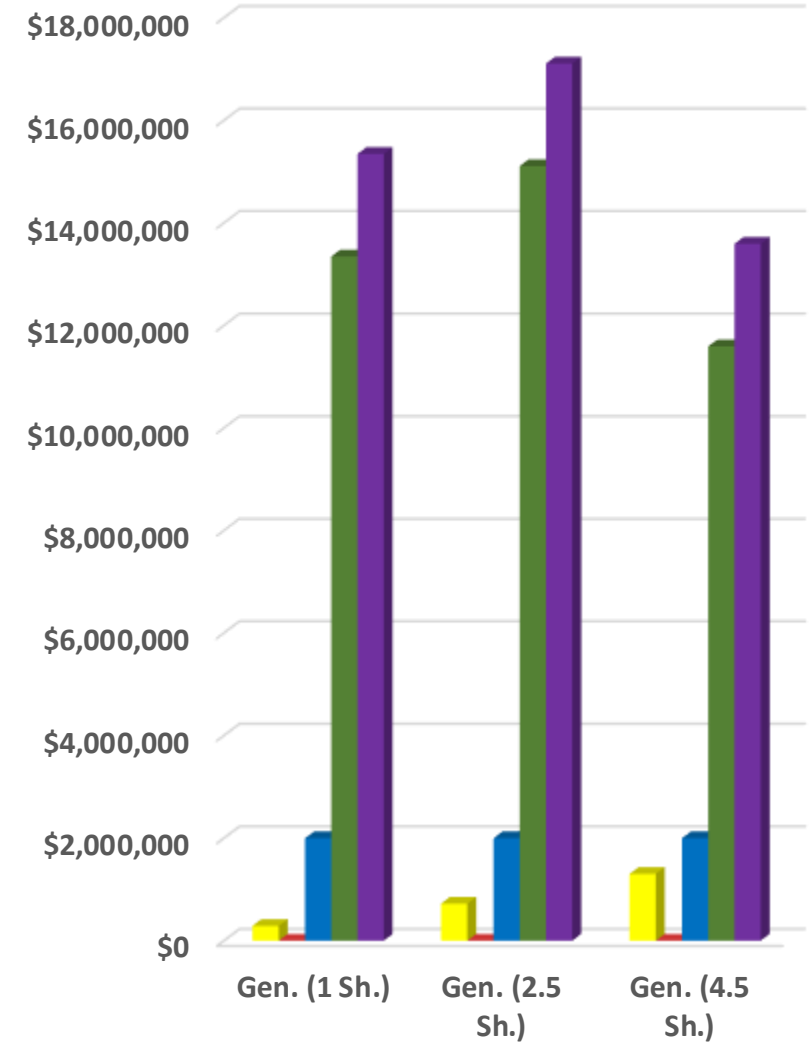
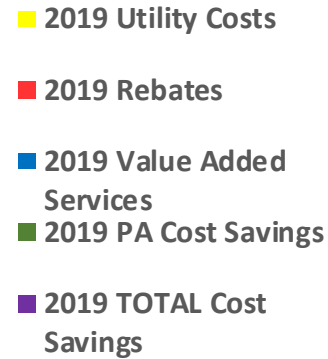
- ☐ *Tracks if the PWROG Products have already been implemented at a plant site or they plan to implement within 5 yrs*
- ☐ *Average Implementation is 85% - Above our 80% Goal*



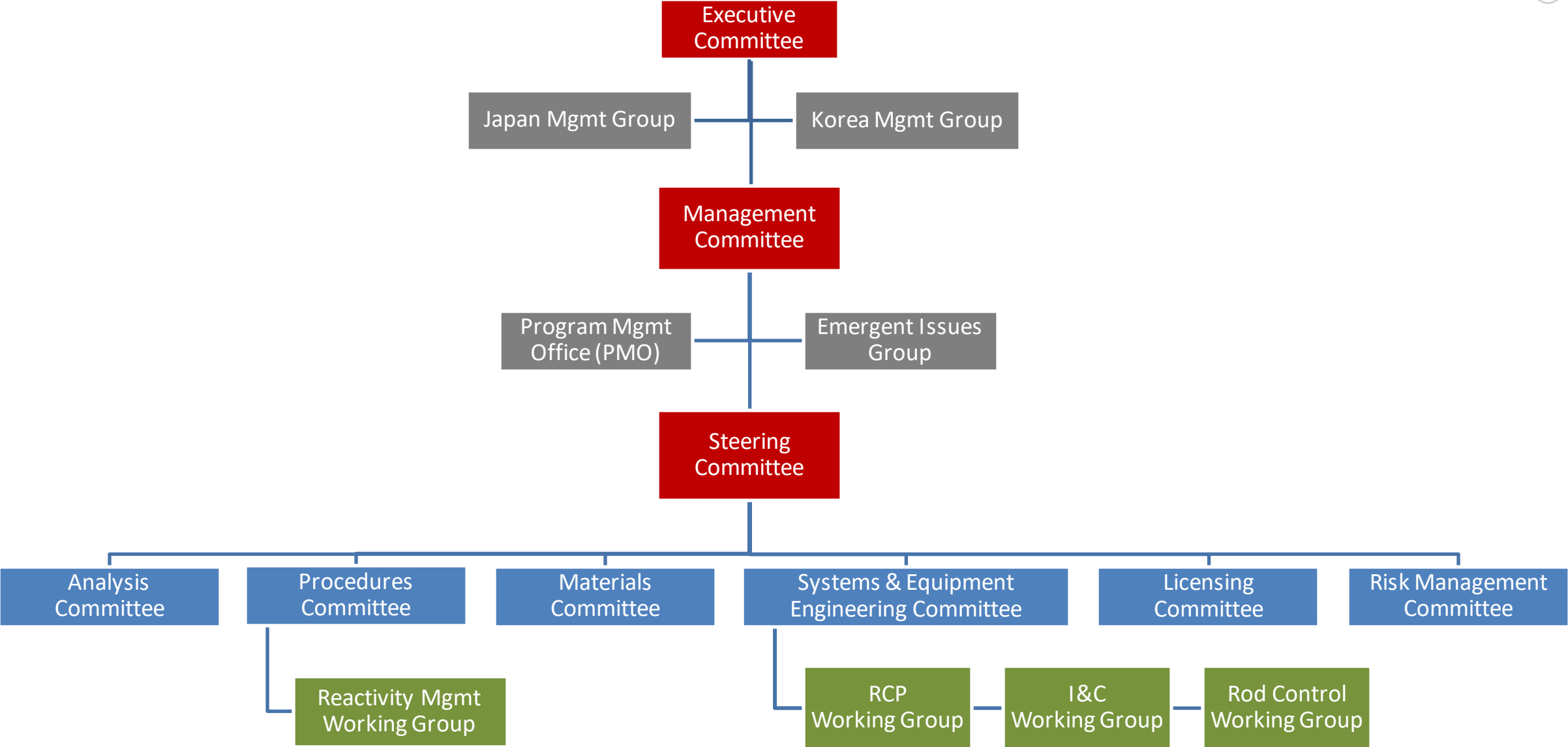
# Key KPI's

- **Return on Investment:**

- ☐ *Cost Savings Ranges from \$13.5M to \$17.5M – Does not include Implementation Cost Savings*
- ☐ *Minimum ~30 to 1 ROI*
- ☐ *Program-specific ROI tool available for use*







# PWROG Membership Composition

**1,800**  
MEMBERS



**180** PWR UNITS

Ameren  
American Electric Power  
Angra I  
Arizona Public Service  
Barakah NPP  
Beznau  
Borssele  
Bruce Power (PSC Only)  
Constellation  
Dominion Energy  
Duke  
EDF  
EDF-Sizewell B

Electrabel  
Entergy  
Eskom  
Eversource  
Florida Power & Light (FPL) / NextEra  
Hokkaido Electric Power Company  
Japan Atomic Power Company  
Kansai Electric Power Company  
Korea Hydro & Nuclear Power  
NPP Krško  
Kyushu Electric Power Company  
Pacific Gas & Electric  
Palisades

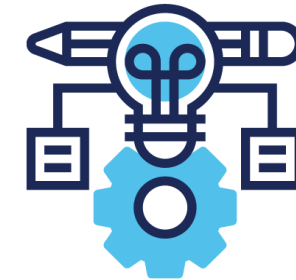
PSEG  
Ringhals 2,3,&4  
Shikoku Electric Power Company  
Southern Nuclear Operating Company  
South Texas Project (STP) Nuclear  
Operating Company  
Spanish Utilities (ANAV & CNAT)  
Taiwan Power Company  
Temelin (I&CWG Only)  
Tennessee Valley Authority  
Vistra  
Xcel Energy

## Generic Project Authorizations (PAs)

- All applicable must participate if the PA is approved by the membership.
- Funded from the base membership fee.

## Cafeteria PAs

- All applicable may participate.
- Funded separately from the base membership fee.



**120-140**  
**PROJECTS**

At any given time, there are approximately 120 to 140 active projects.

# PWROG Summary

**Provide Common Solutions with Costs Shared Globally Among Members**

**Implementation of PWROG Products by Members Averages 85%**

**ROI is a Minimum of 30:1**

**Collective Regulatory Interface (*United Approach*)**

**Rapid Response to Critical Needs (*Emergent Issues Group*)**

**International Organization, Providing Global Perspective to all Solutions**

**Implementation of a Few Key Projects WILL pay back to the Utility the cost of their membership**



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# PWROG Overview

## *Back-up Information*

## Technical Committee & Working Groups

***The Technical Committee's & Working Groups is where the Utility needs are turned into solutions, and they have the following responsibilities:***

**1**  
Identify the needs from the Utilities that have the potential to be cost-shared

**2**  
Recommends the appropriate direction, technical work and funding

**3**  
Review/Evaluate/Approve all Projects and monitor progress of the project execution

## Steering Committee

***The Steering Committee directs daily operations and has the following responsibilities:***

**Evaluates programs based on the value add to the PWROG while offering an industry perspective**

**Recommends operational changes to the Charter or Operations Manual**

**Manages the Generic budget by prioritizing and authorizing individual Generic programs, delaying, deferring or cancelling a Generic program, and establishes the recommended Needs-based budget**

## Emergent Issues Group (EIG)

***Enhances the definition, communication and resolution of potential Part 21 issues and is proactive in identifying emerging industry issues.***

## Management Committee

*The Management Committee has operational oversight and has the following responsibilities:*

**Approves the  
Operations  
Manual**

**Manages  
individual utility  
owners group  
budgets**

**Approves funding  
for Cafeteria  
projects based on  
the project's value  
to each utility  
member**



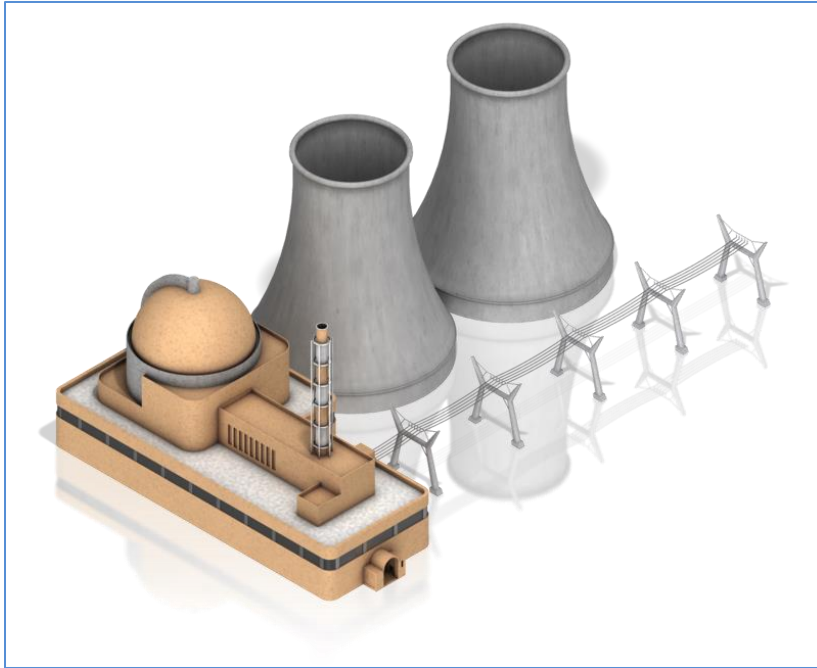
## Executive Committee

*The governing body of the PWROG, the Executive Committee has the following responsibilities:*

**01**  
Approves the  
Charter

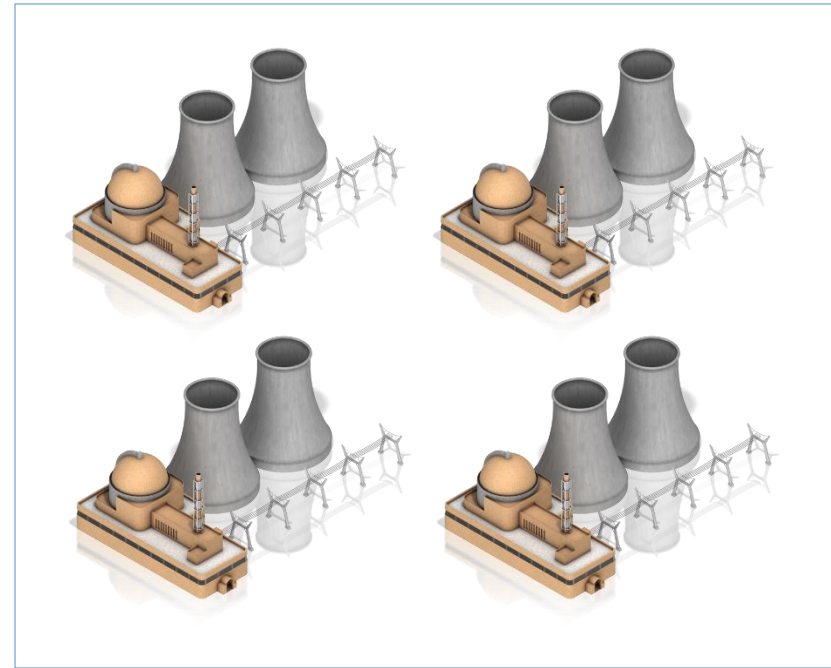
**02**  
Provides executive  
support on  
industry issues

**03**  
Offers strategic  
guidance to the  
overall  
organization



## Single Unit

1 share



## Multi-Unit Site

1 share for the first unit  
 $\frac{1}{4}$  share for each additional unit

## Domestic Members (USA)

- Fixed annual fee – Generic PAs
- Additional fees – Cafeteria PAs

## International Members

- Fixed fees cover (1) all Generic PAs and (2) Cafeteria PAs that are applicable to one or more complete NSSS-sets and, of those applicable, 72% or more are participating.
- Additional Fees – Cafeteria PAs
- Share-based fees are calculated differently than domestic members to enable participation at a reduced share total.
- More details on the PWROG International membership can be found in Module 5 of this training course.