

The logo consists of two curved lines, one blue and one green, arching over the text.

# ENERGY *SOLUTIONS*



Advancing  
GNEP by  
leveraging  
Commercial  
know-how

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## Goals of this presentation


To show

- An optimum process for design & build of a complex nuclear chemical plant
- Why the labs need an industrial partner.... NOW
- Why the development program should be driven by the design
- That to achieve success the labs and industry must be together, each taking some responsibility for developing & designing a practicable, operable, facility that will work.

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## Leveraging Prior Experience

- Structuring development programs to meet design needs
- Ensuring design results in an operable plant
- Maximizing the use of commercially proven equipment
- Design & Constructability
- Optimizing commissioning
- A robust operating envelope that meets all safety requirements




## Prior experience in development programs

- Number and scale of test facilities
- Scope of test facilities
- Scope of work being performed
- Testing for equipment & process sensitivity
- Producing data for safety & regulatory purposes
- Process upset, malops & off normal testing
- Using pilot plants to map stable operating envelopes



## Designing Facilities that will work & meet requirements

- Operability – much used term, often not adequately addressed
- Timing & experience is key
- Operations staff must be integral part of project design team
- Requires not just experienced O&M staff but also staff with authority
- Hands on experience not to be confused with programmatic experience

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## Maximizing the use & value of commercially proven equipment

Advanced Technology in a facility could comprise

- Physical & Chemical Processes
- Plant & Equipment
- Control Systems
  - Distributive control
  - Local (PLC) control
  - Special Instruments
  - Nuclear Materials & Safeguards

## Development to optimize commissioning

- Mapping facility & process characteristics
- Establishing optimum equipment configurations
- Confirmation of operability/maintainability
- Exploring process upset conditions to design & minimize commissioning tests
- Establishing stable process operating envelopes
- Establishing waste specifications

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## An approach that will deliver results

- All parties – the Integrated Project - agree Design, Commissioning & Operations (DCO) needs for CFTC
- Focus is on filling technical gaps to meet DCO requirements; emphasis on development not research
- Labs design development program to meet needs, industry approves
- Industry controls development funds and approves deliverables
- Technical & engineering integrity of design vested in multi disciplinary/party project design committee.
- Project has vested interest in doing necessary and sufficient development work

## Conclusions

- Together, Industry and the Labs can deliver the GNEP facilities
- For the fuel recycling center the requirement is development not research.
- That development must be close coupled to design, commissioning & operational needs
- For successful delivery of the CFTC Industry should drive the development program