

## POWERPLEX-XD

### BWR Core Monitoring Software System (CMSS)

Knowledge is literally power when it means you can increase energy generation from your BWR. POWERPLEX-XD delivers the knowledge needed to maximize rated power operations while assuring fuel remains within operating limits and providing the accurate measured performance data needed for setting optimal reload batch size, loading pattern, and enrichment in the cycle design process.

#### Challenge

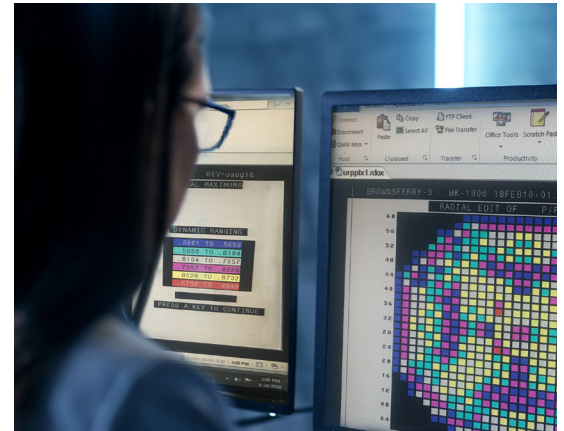
Accurate predictions of both core wide and local reactivity are crucial to assuring your operations retain targeted margins to operating limits. Divergence of measured performance from predictions can mean unplanned derated operations, early coastdown, or the loading of enriched uranium product beyond that needed for target generation.

Actual operations can often depart significantly from cycle design basis projections. The core simulator model in the core monitoring system must be capable of capturing the impact of actual operations to provide the operators with accurate real-time data on operating margins. Reactor engineers need accurate real-time data on core reactivity and operating margins to adapt to unplanned changes and assure maximum generation can be realized during the remainder of the operating cycle.

#### Solution

Framatome has integrated its industry-best cycle design neutronics simulator methodology, MICROBURN-B2, as the computational engine for the POWERPLEX-XD CMSS. This methodology couples comprehensive isotopic tracking algorithms with sophisticated thermal-hydraulic models to assure both reactivity and void distribution are accurately predicted.

Building on more than 30 years of core monitoring experience, POWERPLEX has now been enhanced with the unique capability of real-time cladding stress state monitoring with XEDOR. POWERPLEX was explicitly developed to provide core monitoring for mixed fuel type core applications and has even been utilized at a number of BWRs without reload fuel supply from Framatome. An engaged User's Group has shaped today's POWERPLEX to meet the critical needs of BWR operators and continues to drive innovation in functionality and user interfaces as operator needs evolve.



#### Customer benefits

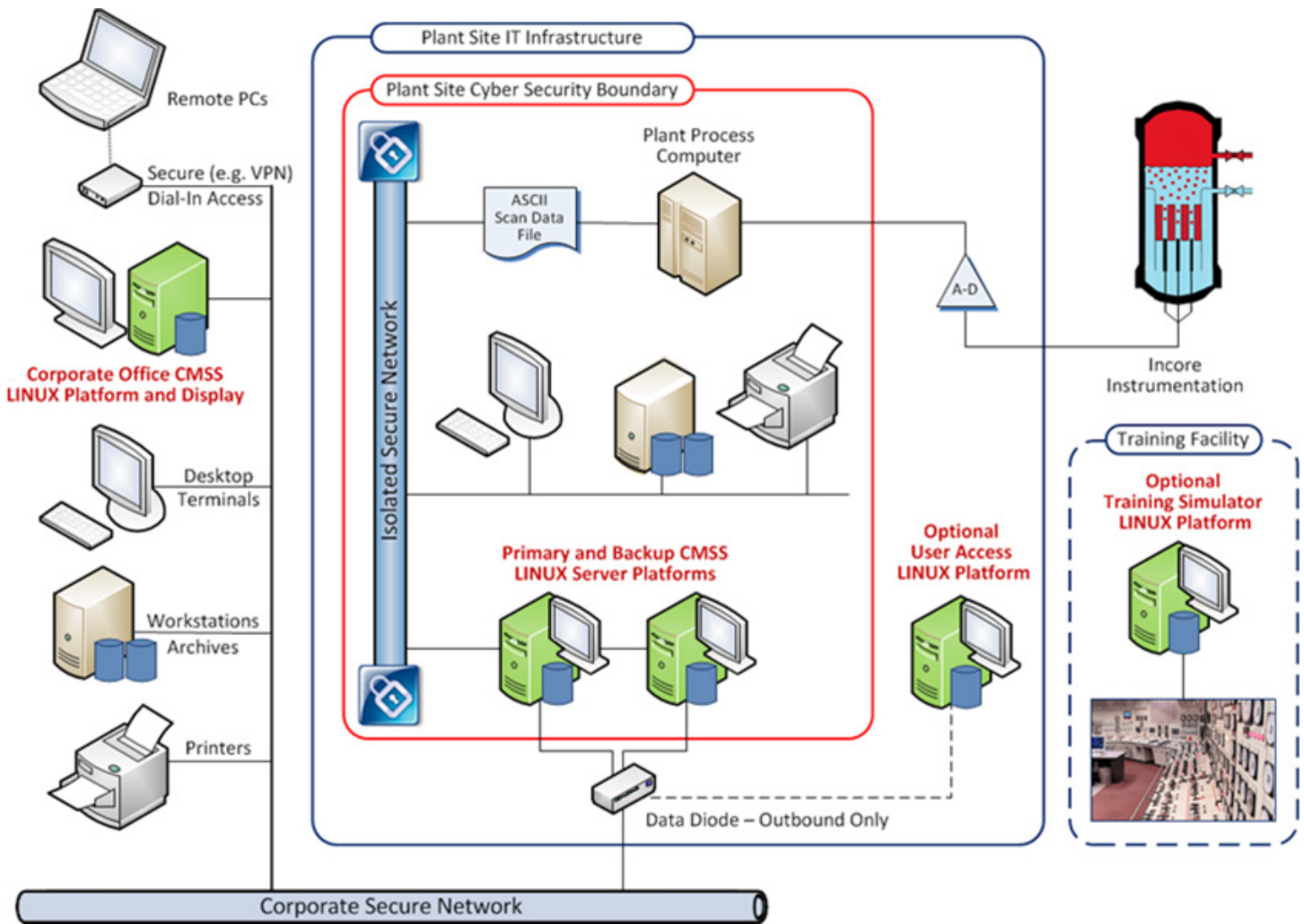
##### Installation

- No plant instrument wiring modifications required
- Rack mounted server hardware
- Robust cyber security isolation

##### Operation

- Accurate real-time operating margins for each fuel type
- Online recalibration without adaptation of the core simulator
- Simplified exchange of data with offline design methodology
- Easy confirmation of compliance with cycle licensing basis

**Your performance**  
is **our everyday commitment**



The POWERPLEX-XD Core Monitoring Software System requires no plant instrument wiring modifications and is fully compatible with modern cyber security architecture.



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[http://www.framatome.com/EN/us\\_platform-793/areva-inc-flexible-fuel-cycle-solutions.html](http://www.framatome.com/EN/us_platform-793/areva-inc-flexible-fuel-cycle-solutions.html)

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