

Exelon Experience with Power Upgrades

RIC 2004

Emergent Technical Issues Session T-11

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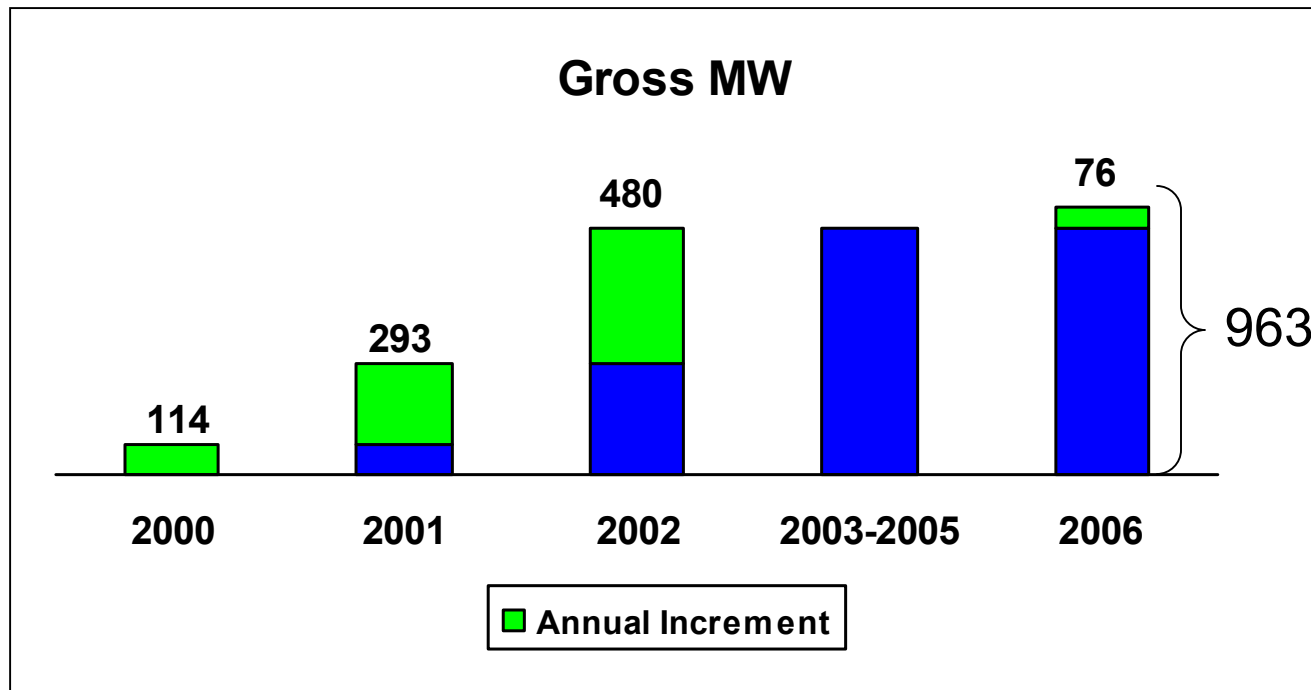
President and Chief Nuclear Officer

Exelon Nuclear

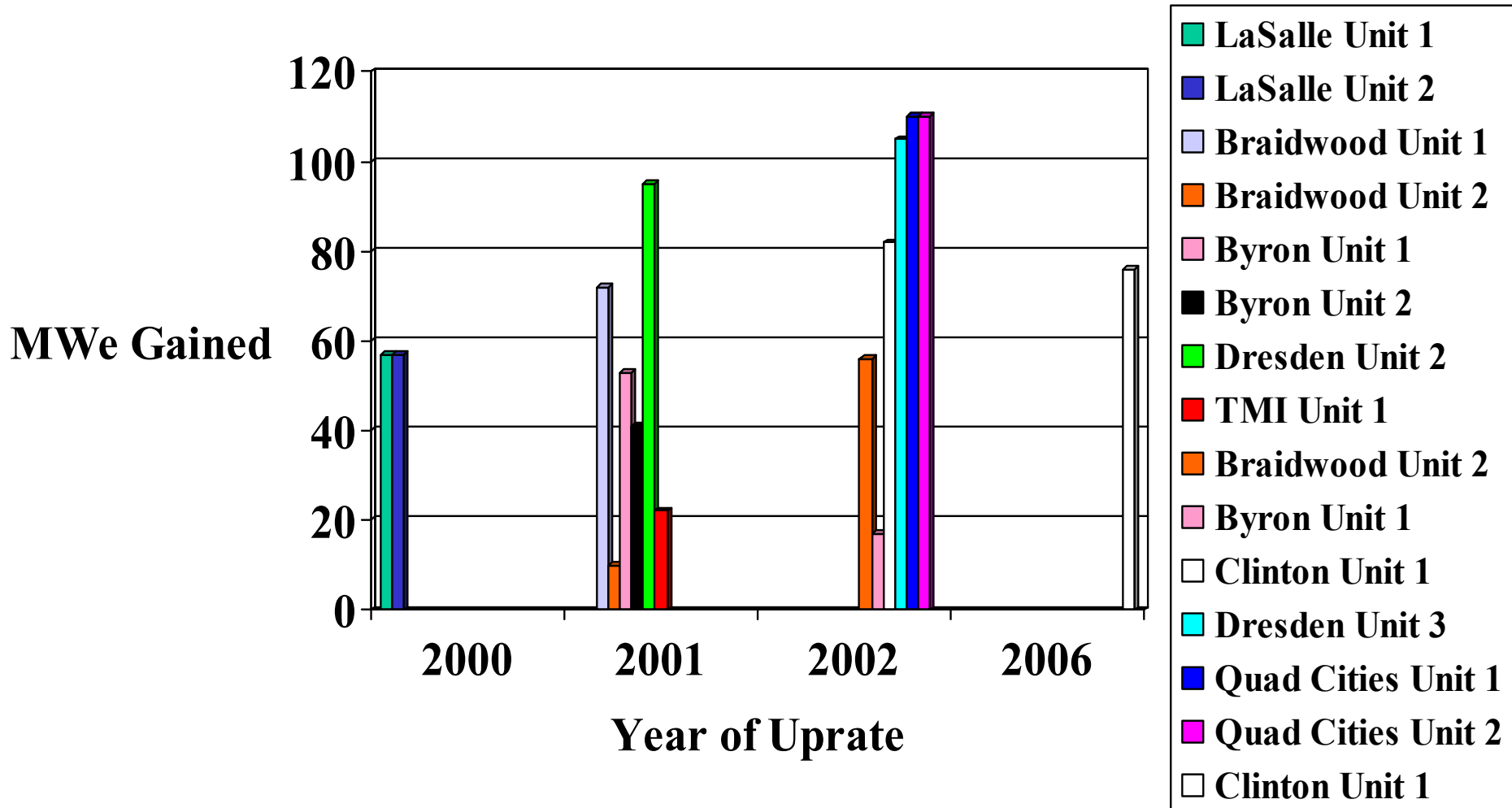
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Power Uprates

The majority of Exelon power uprates are complete with 887 MWe added to fleet capacity with 76 MWe scheduled in 2006



Exelon Power Uprate Details



Exelon Results of Power Uprates

- Majority of power uprates successful with the following exceptions:
 - Quad Cities Unit 1 and 2 experienced Dryer structural integrity and steam line component (Electromatic Relief Valve (ERV)) vibration issues
 - Dresden Unit 2 and 3 both experienced varying degrees of Dryer cracking and both units had isokinetic probes dislodged and migrated to the feedwater sparger

Root Causes of Uprate Issues

- Steam Dryer Failures

High cycle fatigue due to increased amplitude of flow induced and acoustic loading from increased main steam line velocities

- Main Steam Line Component (ERV Actuators)

Accelerated aging due to EPU related increase in main steam line vibration levels

- Feedwater Isokinetic Sample Probe Failures

Flow induced vibration due to increase in feedwater flow

Conclusion

- Quad Cities and Dresden are the exceptions to successful power uprates
- Lessons learned
 - Refrain from fast track temptation on power uprates
 - Implement a proactive vibration monitoring plan
 - Evaluate steam flow effects on steam dryer and other steam flow sensitive components
 - Evaluate pre-existing operational margin limitations against the uprate expected effects

Current Industry Response

- Active dialogue with NRC via Issues Program Groups and Industry Executive Leadership
 - BWR Owners' Group
 - BWR VIP
- Issues Programs active in assessing generic issues
- Generic Insights will be appropriately factored into Issues Programs and NEI Materials Initiative

BWR Future Activity

- For BWR Fleet in U.S., active assessment by executive leadership of need for generic versus plant specific solutions. Working with GE at the executive level
- Near Term determination of technology and design review needs to bound structural and acoustic design requirements for some plant types

Overall Industry Focus

- Licensees and Issues Programs recognize the need to determine safety significance of any emergent issues
- Active engagement with the NRC will serve the needs of all stakeholders
- New design and technology insights may emerge from IP scope and near term work