



**Exelon Simulator Software
Management
Jeff Gurley, MBA, PMP
IT Manager
Nuclear Real Time, Simulator
Applications**

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Agenda

Exelon Nuclear
Exelon IT Simulator Applications
Simulator Upgrade Strategy
Simulator Projects
T/H Project Management

Exelon Nuclear Fleet



Exelon Nuclear Stations

- ✓ J A Fitzpatrick Acquisition
 - April 2017
 - SW analyst move from Training to IT 2018
- ✓ Commitment to keep Clinton and Quad Cities open for 10 more years
 - Illinois legislation
- ✓ Commitment to keep Ginna and NMP 1 open
 - New York legislation

IT Simulator Applications

- ✓ Maintains the simulator software
- ✓ Panel maintenance provided by Site IT or plant maintenance
- ✓ 1 Programmer per site, at the site
 - 2 Project Managers
 - 1 Architect
- ✓ Major mods/upgrades are outsourced
- ✓ Programmers are a mix of engineers or computer science majors
- ✓ Commonality as appropriate



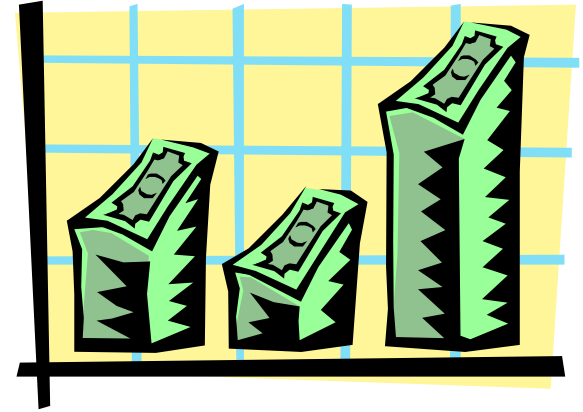
Simulator Upgrade Strategy

- ✓ Exelon understands the importance of simulator investments
- ✓ The quality of the simulator is important to Exelon's licensed operator programs
- ✓ Site Training and Simulator Applications identifies and prioritizes upgrades yearly
- ✓ Simulator Applications works with vendors to provide estimates
- ✓ Corporate Training then seeks strategic Project funding
- ✓ Mods are funded by the site mod project

Simulator Strategic Projects

✓ 2009 – 2013, \$9M

- Clinton rehost
- 8 electrical models
- 5 secondary models
- TMI Rad transport
- 4 I/O systems
- 53 NUMACS
- Executive System and Instructor stations
- Configuration management software



Simulator Strategic Projects (cont.)

✓ 2014 – 2017, \$8M

- By, BW, Dre, Las, QC, Lim and TMI T/H upgrades
- Dre, QC SPING
- Las P&IDs
- Lim RCIC, CS, P&IDs and SA
- Lim, Las, QC RTA board (DFW) replacement
- Dre, Las, QC Virtual Mark 6 Upgrade
- Bw, Dre, PB VPanels
- PB Containment, SimExec Upgrade
- DRE Containment
- Brw, CPS, Lim, TMI, PB I/O upgrades



Simulator Strategic Projects (cont.)

✓ 2016 – 2020, \$15M

- Lim, TMI, Las, CPS T/H upgrades
- Dre, Las, Lim, PB, QC Containments
- NMP1,2, PB Electrical AC
- Bw, By, CPS, Dre, Lim. PB Electrical DC
- Misc. BOP models



T/H Upgrades to THOR3G

✓ Byron, Braidwood, Dresden, LaSalle, Quad Cities

- Upgrade from THOR
- 1998 – 2000 with a rehost
 - Coupled with Studsvik Ramona core model

✓ Limerick

- Upgrade from ATHENA, 1994
 - S3R implemented 2003

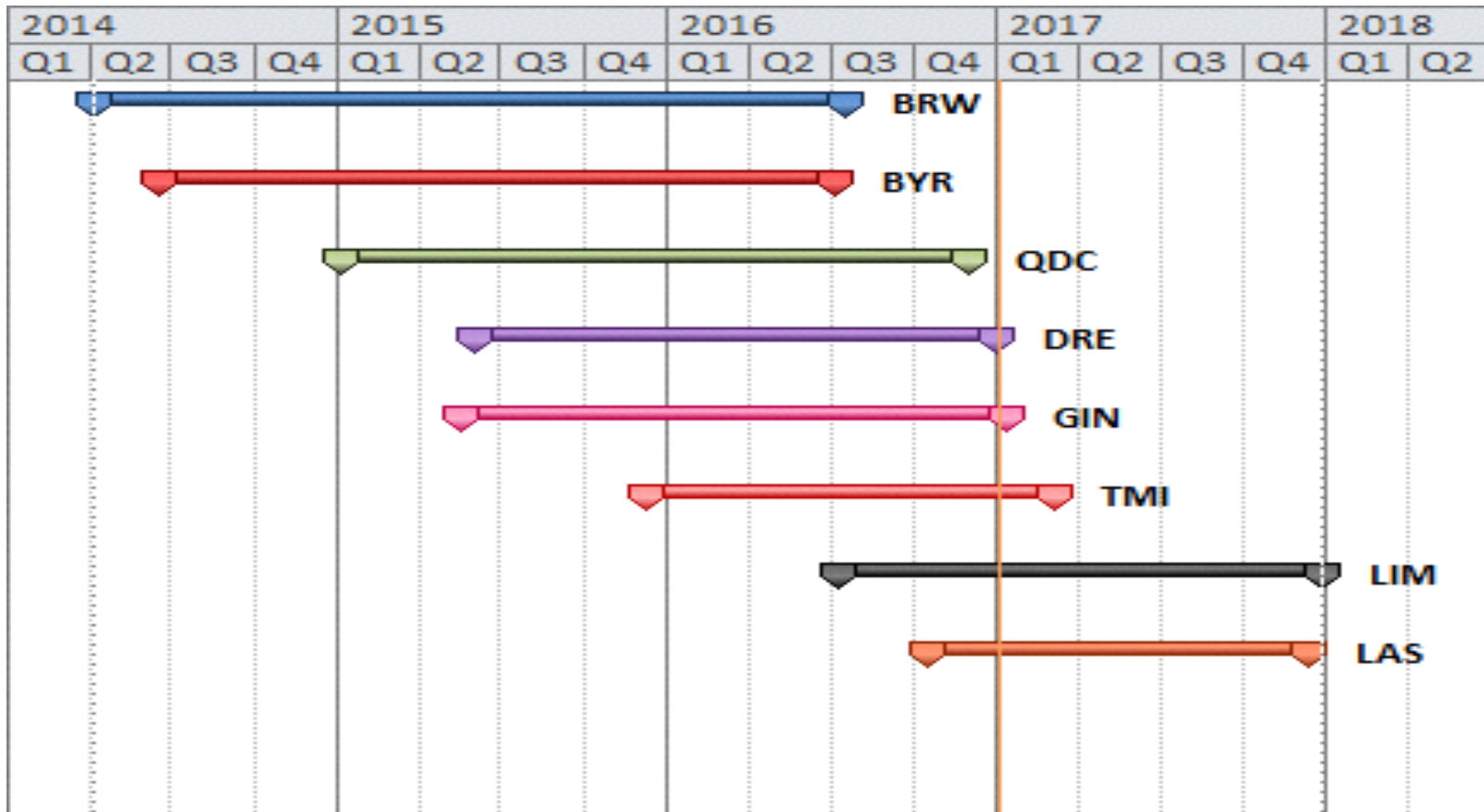
✓ TMI

- Upgrade from L3 ANTHEM, 2004
 - Keeping COMET core

✓ Peach Bottom and Oyster Creek THOR/S3R

✓ NMP and CC already THOR/S3R

Exelon T/H Upgrades



12 month upgrades spaced over 4 years

Eliminates annual budget restrictions

Accommodates training schedules better

Exelon Simulator Software Management

Project Management

✓ IT Project Methodology

- Based on industry standards and best practices
- Software development life cycle
- Closely aligns with site methodology

✓ Simulator project lessons learned database

✓ 3 PMI PMPs and 6 analyst capable of PM

✓ Detailed contract specifications

- Requirements matrix
- Testing
- Competitive bids

✓ Status monitoring

General Upgrade Risks

- ✓ Training Participation
- ✓ Schedule adherence
- ✓ Simulator availability for SAT
- ✓ Lack of timely approval of deliverables
- ✓ Legacy model problems
- ✓ Configuration management

Questions?

Braidwood Simulator



Dresden Simulator

