

Practical Considerations for Implementation of SI Units –

A View from the Nuclear Power Industry

Willie Harris, CHP

Director, Radiation Protection and CFAM

Exelon Nuclear



Exelon Generation[®]

Topics

- Overview of Exelon Nuclear Fleet
- Barriers to conversion
- Ways to overcome these barriers
- Timing of potential conversion

Exelon Nuclear Fleet

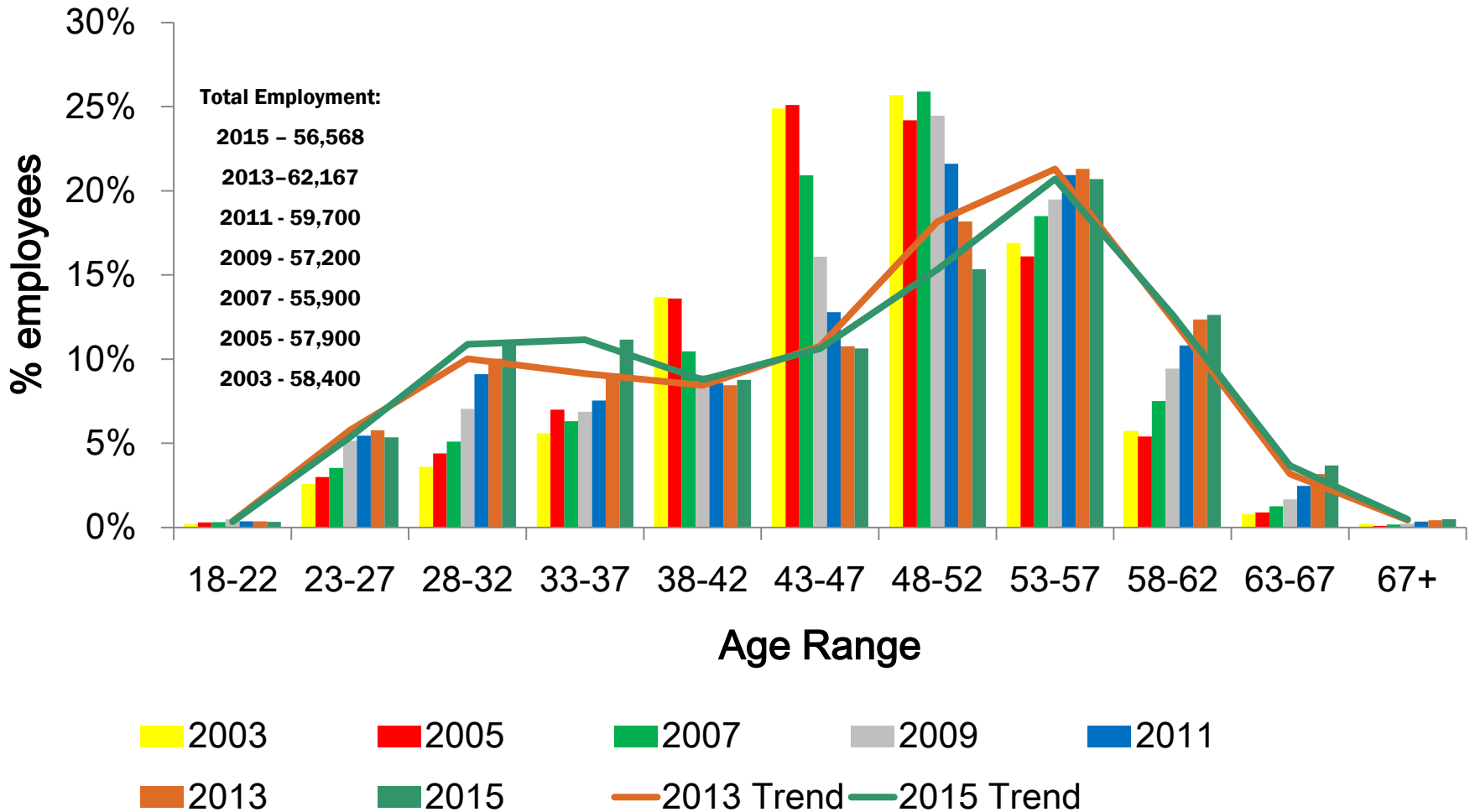
One Fleet, One Vision

To be the best operator of nuclear plants worldwide



 Exelon Generation.

U.S. Nuclear Industry Employment Distribution by Age



Barriers to Overcome – Technical/Human

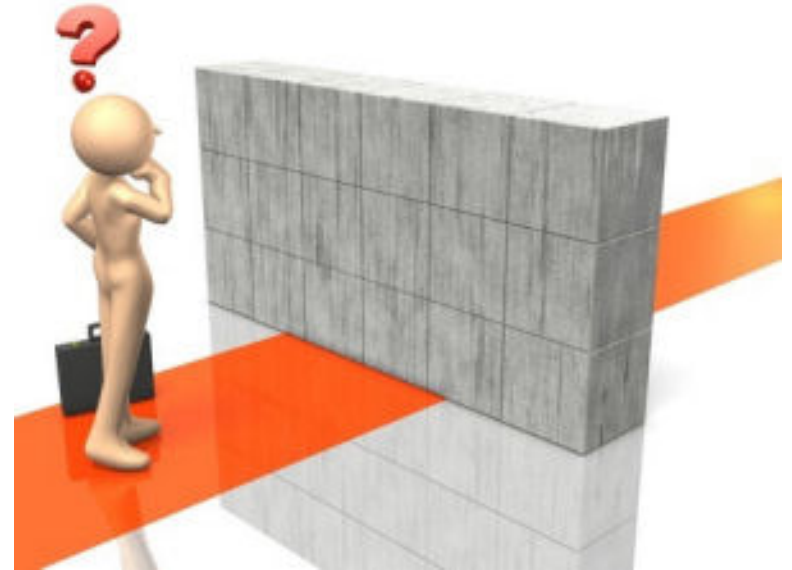
- Worker Demographics
- Approx. 100,000 nuclear workers overall
 - 56,000 utility workers
 - 65% or 36,000 persons have no formal education beyond high school
 - 44,000 supplemental workers (e.g. laborers, carpenters, millwrights, welders, radiation protection technicians, etc.)
- Potential for significant HU events
 - RP technicians
 - Workers

Barriers to Overcome - Economic

- Significant Costs to convert
 - Procedures
 - Conversion to new units
 - In-Plant Instrumentation
 - Modifications required to control room instrumentation and in-plant radiation monitoring equipment
 - Radiation Detection Instruments
 - Personnel Dosimetry and Electronic Dosimetry
 - Hand Held radiation detection instruments
 - Training
- Cost Estimates per Unit Power Facility
 - Facility Modifications – Six to ten of millions dollars (or more)
 - Rad Detection Instruments – 2 to 4 million dollars
 - Procedures and training – 400 to 500K dollars

Can the Barriers be Overcome?

- Is there a burning platform or driver for this change?
- Is the Cost to make the change worth any of the perceived benefits?
- Is there funding that will be provided to make the change or will we saddle the utilities with the costs?



Timing on the Changes

- Based on the cost to benefit for the change the nuclear industry would recommend deferral of the change
 - Large cost to implement
 - No improvement in worker safety to align to the SI units

*Fundamental question –
“Is the juice worth the
squeeze?”*



Binika Shah
Senior Project Manager
World Nuclear Association

Global nuclear industry view of units & quantities

- Current system (even with SI units) difficult for public to understand - additional complexity in complicated RP system → important for all situations but particularly during/after an emergency.
- Consistency and harmonisation supports increasing international market.
- Understand impact - significant cost and behavioural change associated with move to SI units (does not happen overnight); if change, allow for phased and long transition time.

Thank you for your Attention

