Nuclear Digital Services
Pioneering the Power That Matters

Paul Tobin, Executive Vice President, Nuclear Digital Services
June 2018
Our businesses

Civil Aerospace $10.6bn
Power Systems $4.1bn
Defence $4.3bn

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# Nuclear Overview

## Nuclear
(4,100 highly skilled employees)

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<th>Civil Nuclear</th>
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<td><strong>Submarines</strong></td>
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### Defense Nuclear
- Reactor plant design and supply
- Operation of licensed sites
- Fuel fabrication
- Through life services

### Instrumentation & Control
- Reactor Protection System
- Rod Control System
- Neutron Instrumentation System
- Plant Monitoring System
- In core Instrumentation Systems

### Nuclear Services & Projects
- Digital Services
- Plant Process Computers
- Maintenance Reduction
- Design Engineering (App B)
- Emergency Diesel Generator System
- Waste Treatment Systems
- Steam Generator Inspections
- Engineering – (EOC)

### SMR
- Design and development of SMR power station

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Rolls-Royce SPINLINE: Safety Critical I&C

Installed Locations: 150 Worldwide

Run-Time: 3000 reactor-years of operation

Safety Record: Zero failures on-demand

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Digital Vision Video
Our Digital Pedigree

Global Presence
195 Nuclear Units

Aerospace Analytics
30 years of experience

Domain Expertise
Nuclear Design Organization

Unique Approach
Demand Driven Process

Availability + Reliability + Cost Reduction

Utilize RR Digital Services
Do not utilize RR Digital Services

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Digitization: Where Technology meets Value

Industry challenge
Rising operating costs threaten the viability of nuclear power plants to compete in the energy market and survive

Plant operations $145MN/plant

Supply chain
Engineering
Outage management
Maintenance
Support (training/QA/Etc.)
Work management

Innovation to reduce cost

Service Centre
- On line monitoring
- Asset management
- Outsourcing
- Improved reliability
- Data intelligence to reduce cost

Operations Centre
- Physical maintenance of plant
- Support

Partnership

- Utility focus on core activities to ensure plant is running
- Rolls-Royce focus on reducing costs through analytics and efficiencies

Target 30% reduction in operating costs

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Delivered Results to the Industry

Rolls-Royce Delivered Results

- **FENOC**: Implementation of full program, continues to deliver $11M per year in reduced O&M costs
- **PSEG**: Six month implementation of Maintenance Reduction delivered $14M in one-time cost savings; man-hours and parts
- **Bruce Power**: First year of integrated Maintenance and Inventory program (T-104) delivered $19M in O&M reductions
- **ENW**: Refueling outage PM scope delivered $2.9M in removed cost from outage, particular focus on contract support
- **EDFE**: System review of PM activities on three key systems removed 3,500 man-hours of scope

ONE YEAR OF ANALYSIS
VALUE CREATION OF OVER $52M

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