



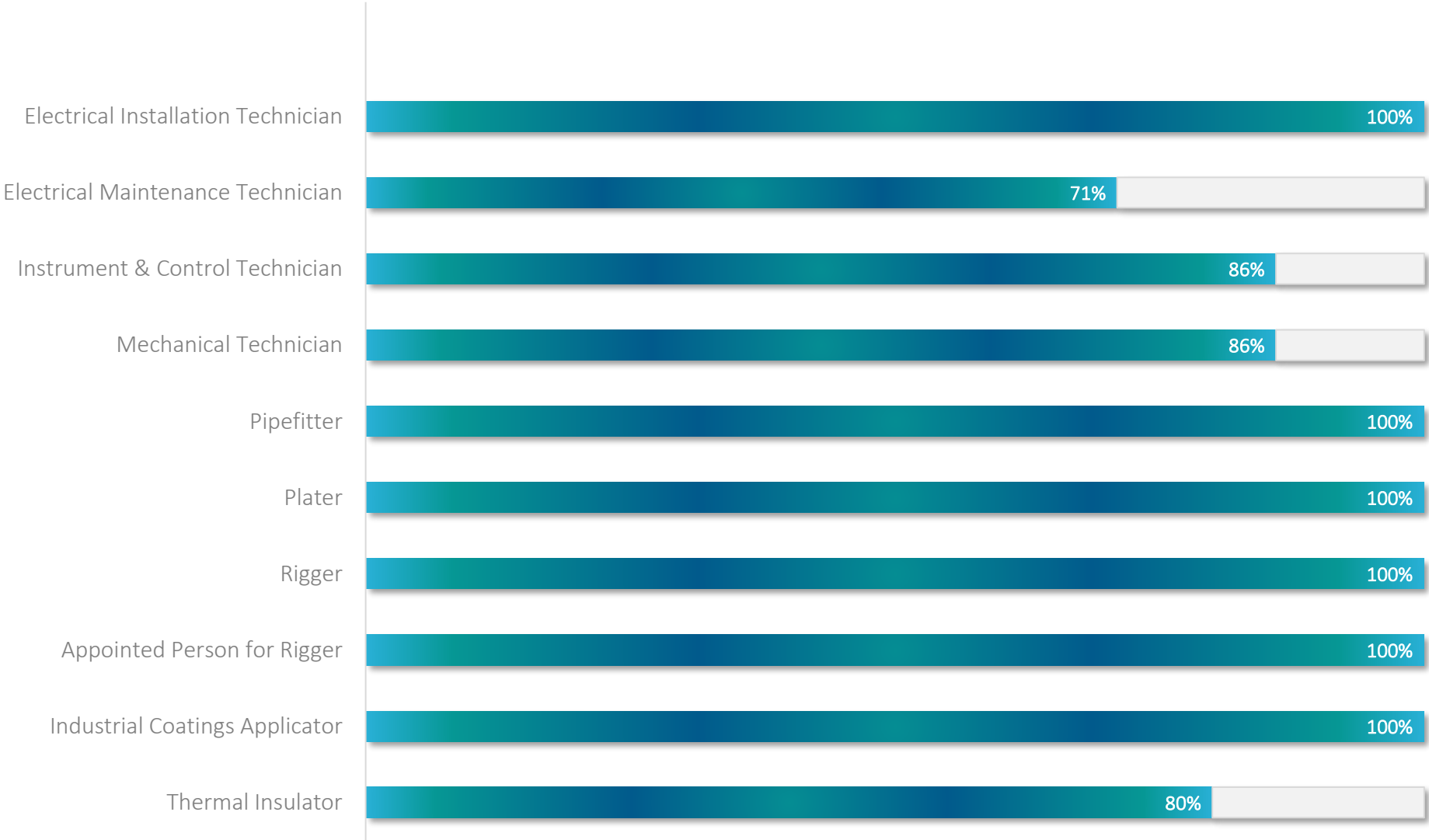
CONNECTEDCOMPETENCE

# Connected Competence Analysis

## Against Nuclear Craft and Technician Role Requirements

December 2022

# Common skills transfer from Engineering Construction Industry across the Nuclear Sector



## CC BASE STANDARD

### Electrical Installation

Isolate a three-phase distribution board, install final circuits, carry out dead tests using appropriate materials, equipment, tools and techniques.

Install cables, terminate, and test a three-phase motor using appropriate materials, equipment, tools and techniques.

Measure, cut, shape, construct, and install a cable support system using appropriate materials, equipment, tools and techniques.

Gland and terminate industrial type cable into an intrinsically safe installation using appropriate materials, equipment, tools and techniques.

Select, dress, gland and terminate cables, into a suitable component using appropriate materials, equipment, tools and techniques.

'Ex D' - Select, dress, gland and terminate cables, into a suitable component certified for use in explosive atmospheres, using appropriate materials, equipment, tools and techniques. The component must also contain suitable Ex rated terminals.

Nuclear Requirement – what's not needed?

**Explosive Atmospheres (Ex D)**

Nuclear Requirement – what else is needed?

**No additional base technical requirements**



TIE04 - Isolate a three-phase distribution board, install final circuits, carry out dead tests using appropriate materials, equipment, tools and techniques.

TIE08 - Install cables, terminate, and test a three-phase motor using appropriate materials, equipment, tools and techniques.

TIE15 - Measure, cut, shape, construct, and install a cable support system using appropriate materials, equipment, tools and techniques.

TIE16 - Gland and terminate industrial type cable into an intrinsically safe installation using appropriate materials, equipment, tools and techniques.

TIE17- Select, dress, gland and terminate cables, into a suitable component using appropriate materials, equipment, tools and techniques.

TIE17Ex Version - Select, dress, gland and terminate cables, into a suitable component certified for use in explosive atmospheres, using appropriate materials, equipment, tools and techniques. The component must also contain suitable Ex rated terminals. NOT REQUIRED

Nuclear Electrical Installation Technician Competence Profile matches Connected Competence Base Standard – **100%**

## CC BASE STANDARD

### Electrical Maintenance

Inspect and test portable electrical equipment using appropriate tools, equipment and techniques.

Check the condition of battery cells, take voltage readings making comparison to the manufacturers recommendations and check the functionality of the battery-supported UPS equipment.  
Prepare the equipment and reinstate after the work has been completed safely.

Inspect, test and maintain industrial circuit protective equipment using appropriate materials, equipment, tools and techniques.

Visual, close and detailed inspection of electrical equipment in a defined hazardous area, recording of results and recommendation of any remedial action.

Periodic inspection and testing of the 3-phase plant using appropriate materials, equipment, tools and techniques.

Nuclear Requirement – what's not needed?

**PAT requirements**

**Battery Operated UPS Systems**

Nuclear Requirement – what else is needed?

**Variable Speed Drives**

**Fault-finding**



- TEM03 - Inspect and test portable electrical equipment using appropriate tools, equipment and techniques. NOT REQUIRED
- TEM05 - Check the condition of battery cells, take voltage readings making comparison to the manufacturers recommendations and check the functionality of the battery-supported UPS equipment. Prepare the equipment and reinstate after the work has been completed safely. NOT REQUIRED
- TEM06 - Inspect, test and maintain industrial circuit protective equipment using appropriate materials, equipment, tools and techniques.
- TEM10 - Visual, close and detailed inspection of electrical equipment in a defined hazardous area, recording of results and recommendation of any remedial action.
- TEM14 - Periodic inspection and testing of the 3-phase plant using appropriate materials, equipment, tools and techniques.
- Variable Speed Drives.
- Fault-finding.

Nuclear Electrical Maintenance Technician Competence Profile matches Connected Competence Base Standard – **71%**

## CC BASE STANDARD

### Instrument and Control Maintenance

Range check a pressure gauge. Change settings on a pressure switch. Recalibrate a SMART pressure transmitter.

Re-range a level transmitter. Calculate range required to measure level in a tank or vessel using hydro-static head formula and apply the range values to a SMART level transmitter.

Commission a temperature detector (RTD or thermocouple) and a SMART temperature transmitter including a range change from current settings, recalibration and full loop check from heat source to transmitter output.

Commission an orifice-plate differential pressure flow SMART transmitter to a specified range. Connect the transmitter manifold assembly and perform a calibration check.

Remove a pneumatic valve positioner. Replace the valve stem gland packing. Reassemble and body pressure test the valve. Stroke test the valve assembly to operate open/closed and complete a full loop calibration instrument test record.

Identify faults and defects with SBT assemblies, disassemble SBT assemblies, rectify faults and defects and reinstall SBT assemblies by selecting and using correct materials, tools, fittings, clamps and supports.





TMI01 - Range check a pressure gauge. Change settings on a pressure switch. Recalibrate a SMART pressure transmitter.

TMI02 - Re-range a level transmitter. Calculate range required to measure level in a tank or vessel using hydro-static head formula and apply the range values to a SMART level transmitter.

TMI04 - Commission a temperature detector (RTD or thermocouple) and a SMART temperature transmitter including a range change from current settings, recalibration and full loop check from heat source to transmitter output.

TMI14 - Commission an orifice-plate differential pressure flow SMART transmitter to a specified range. Connect the transmitter manifold assembly and perform a calibration check.

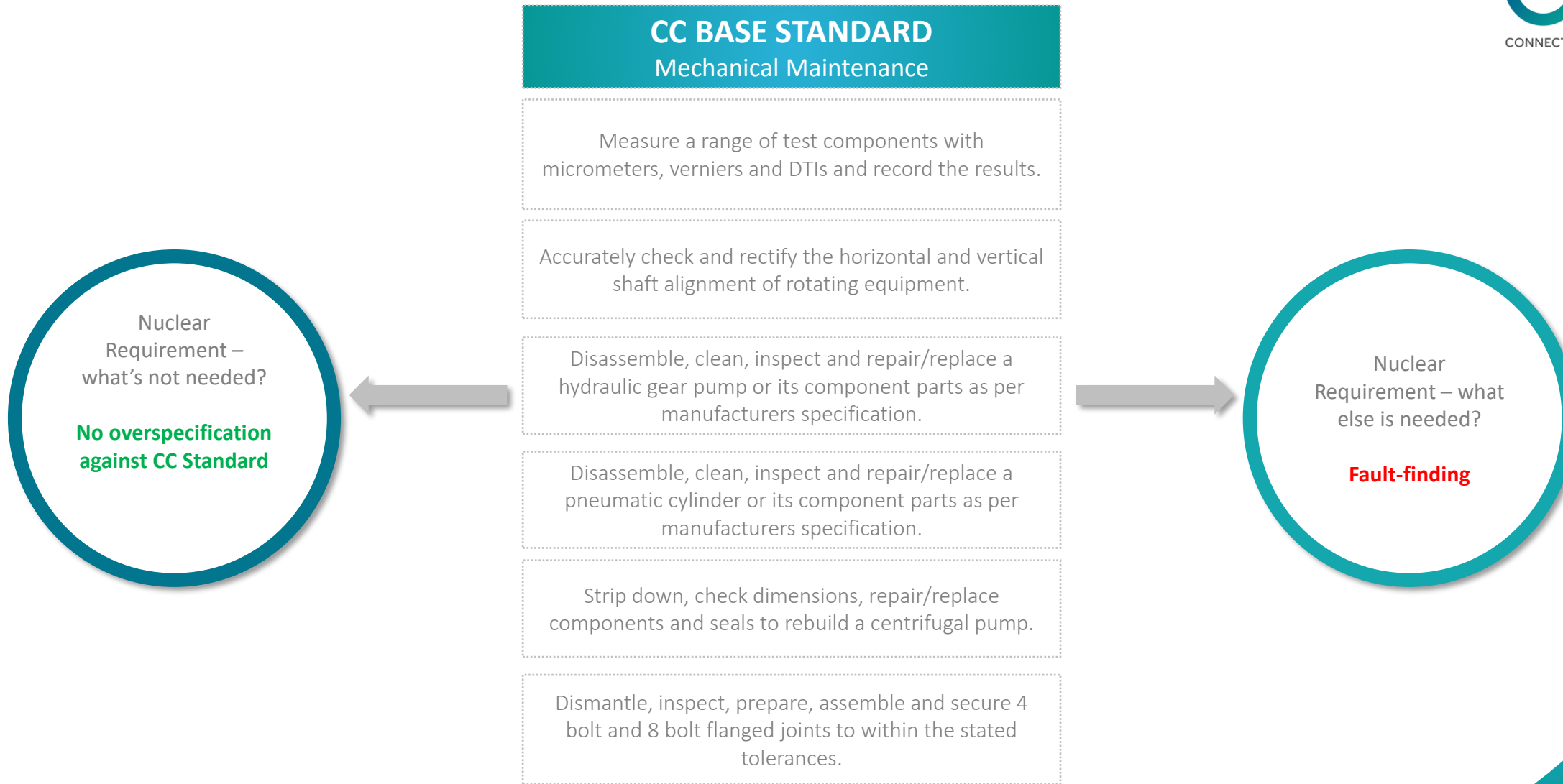
TMI17 - Remove a pneumatic valve positioner. Replace the valve stem gland packing. Reassemble and body pressure test the valve. Stroke test the valve assembly to operate open/closed and complete a full loop calibration instrument test record.

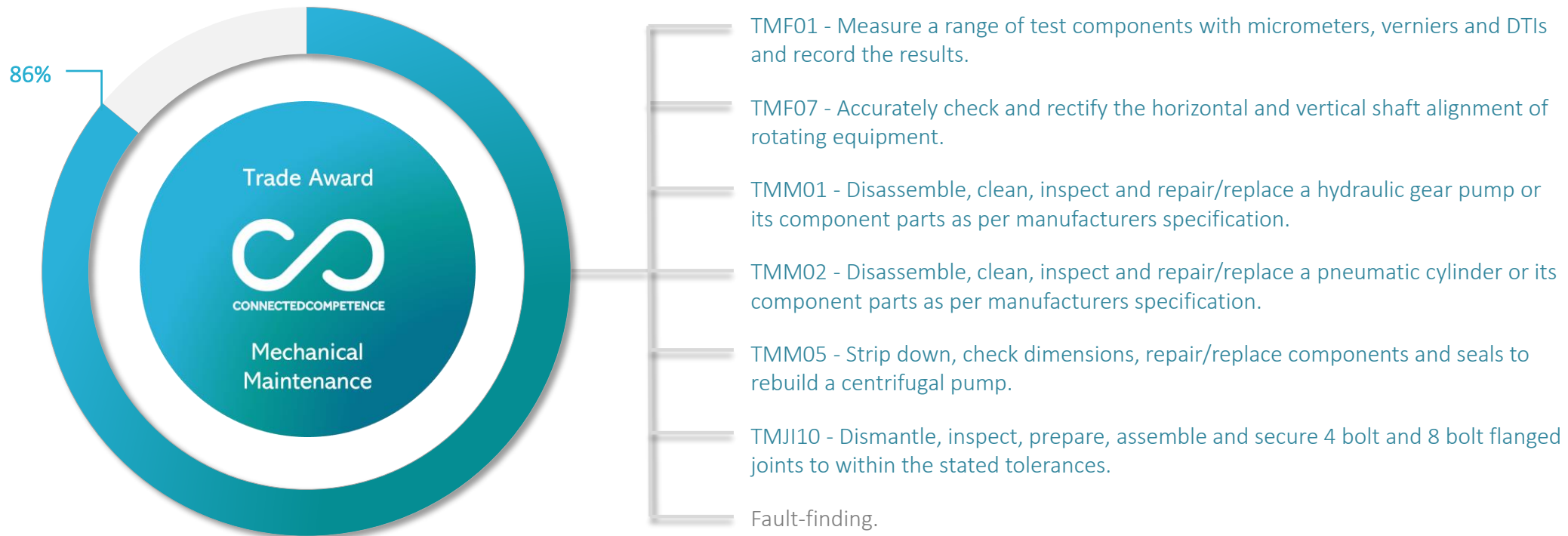
SBT02 - Identify faults and defects with SBT assemblies, disassemble SBT assemblies, rectify faults and defects and reinstall SBT assemblies by selecting and using correct materials, tools, fittings, clamps and supports.

Fault-finding.

Nuclear Instrumentation & Control Technician Competence Profile matches Connected Competence Base Standard – **86%**







Nuclear Mechanical Maintenance Competence Profile matches Connected Competence Base Standard – **86%**

## CC BASE STANDARD Pipefitting

Fabricate pipework spools, assemble and secure pipework for welding as per specification drawing using cutting and grinding techniques.

Fabricate and install pipework supports using bolting and clamping systems including bending techniques.

Prepare and hydrostatically test pipework systems, and then drain the systems.

Interpret information from an isometric drawing and produce full scale wire representation. Produce, assemble and secure threaded pipework joints using threaded joints, flanges, and fittings from specifications.

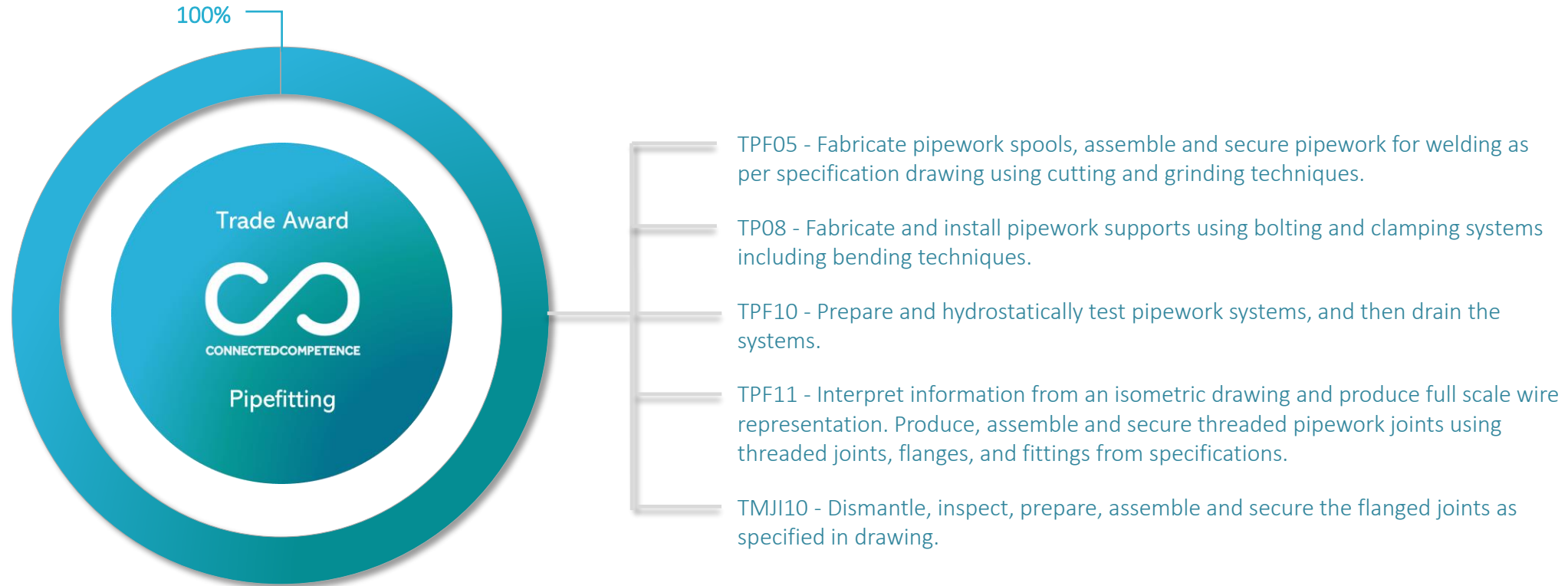
Dismantle, inspect, prepare, assemble and secure the flanged joints as specified in drawing.

Nuclear  
Requirement  
What's not needed?

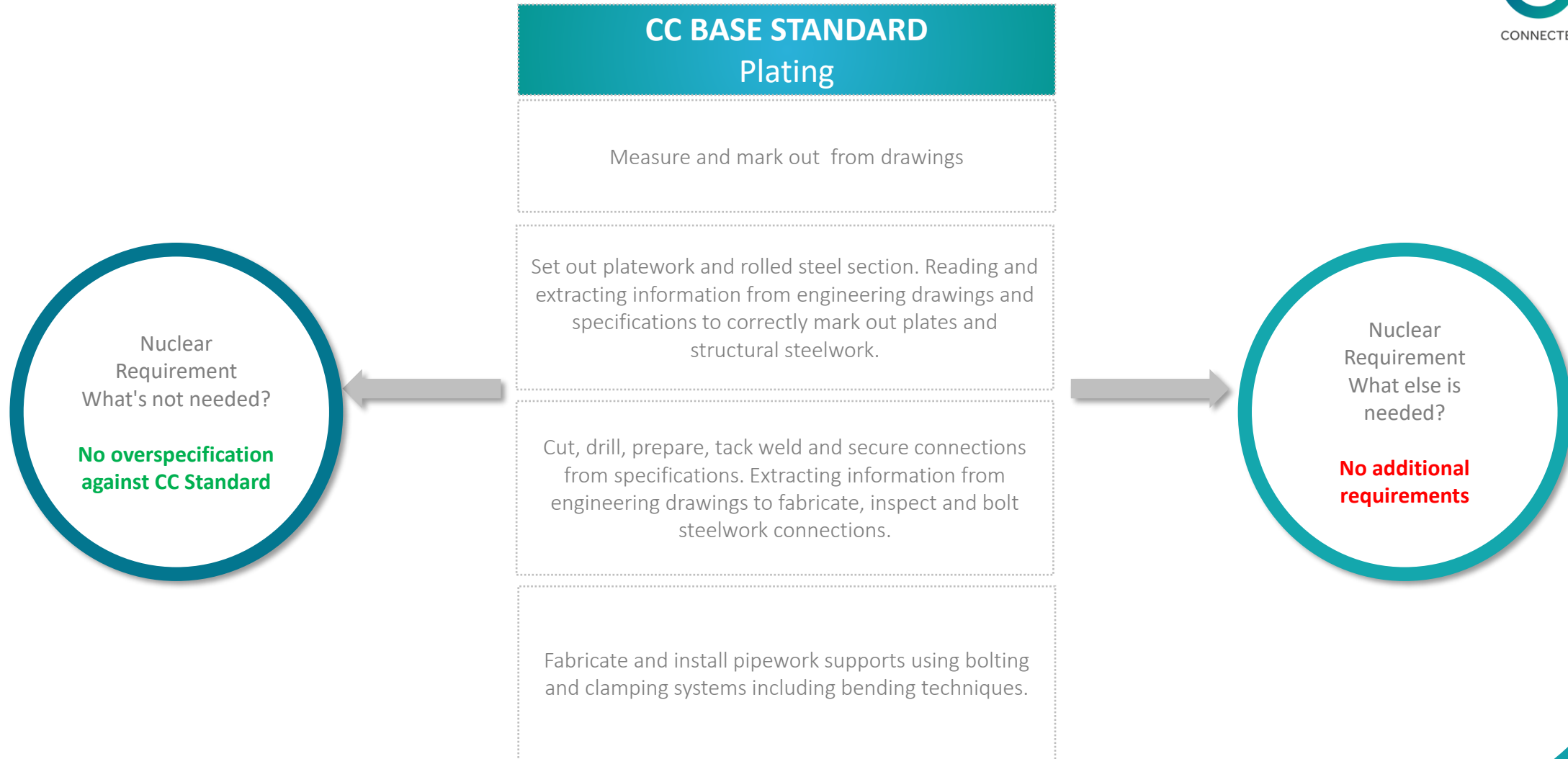
**No overspecification  
against CC Standard**

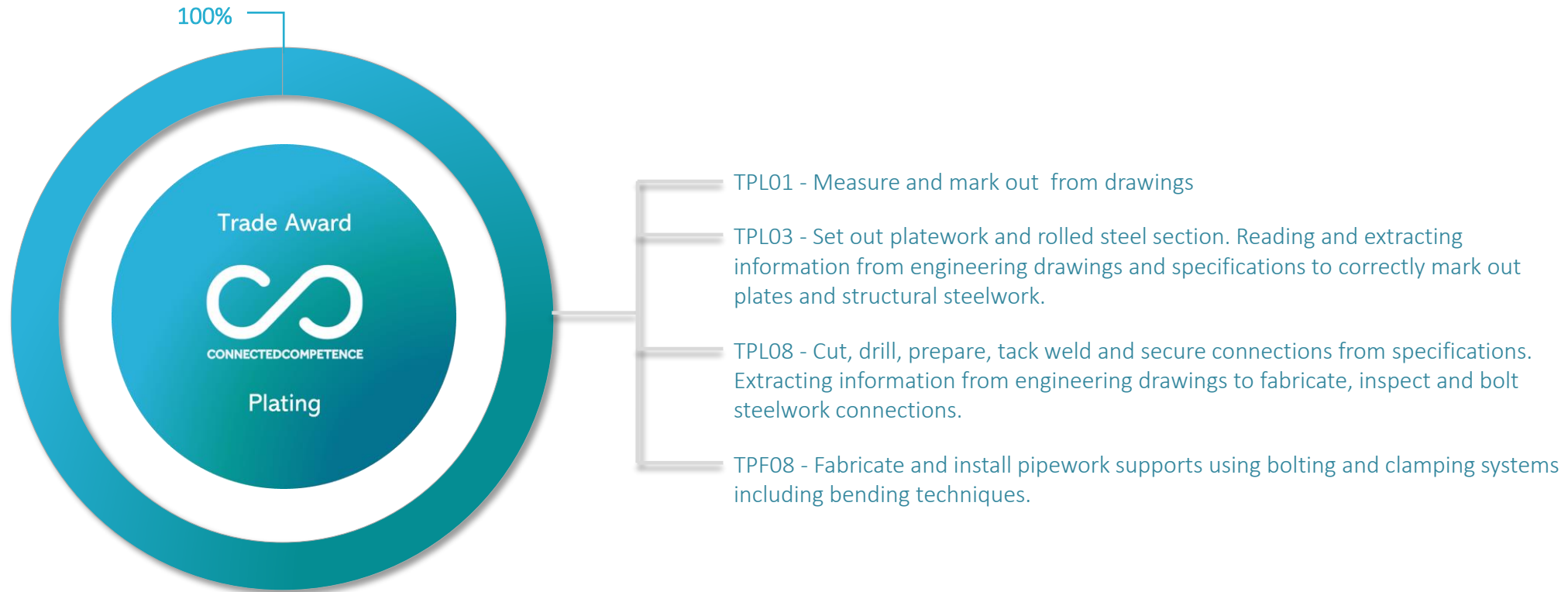
Nuclear  
Requirement  
What else is  
needed?

**No additional  
requirements**

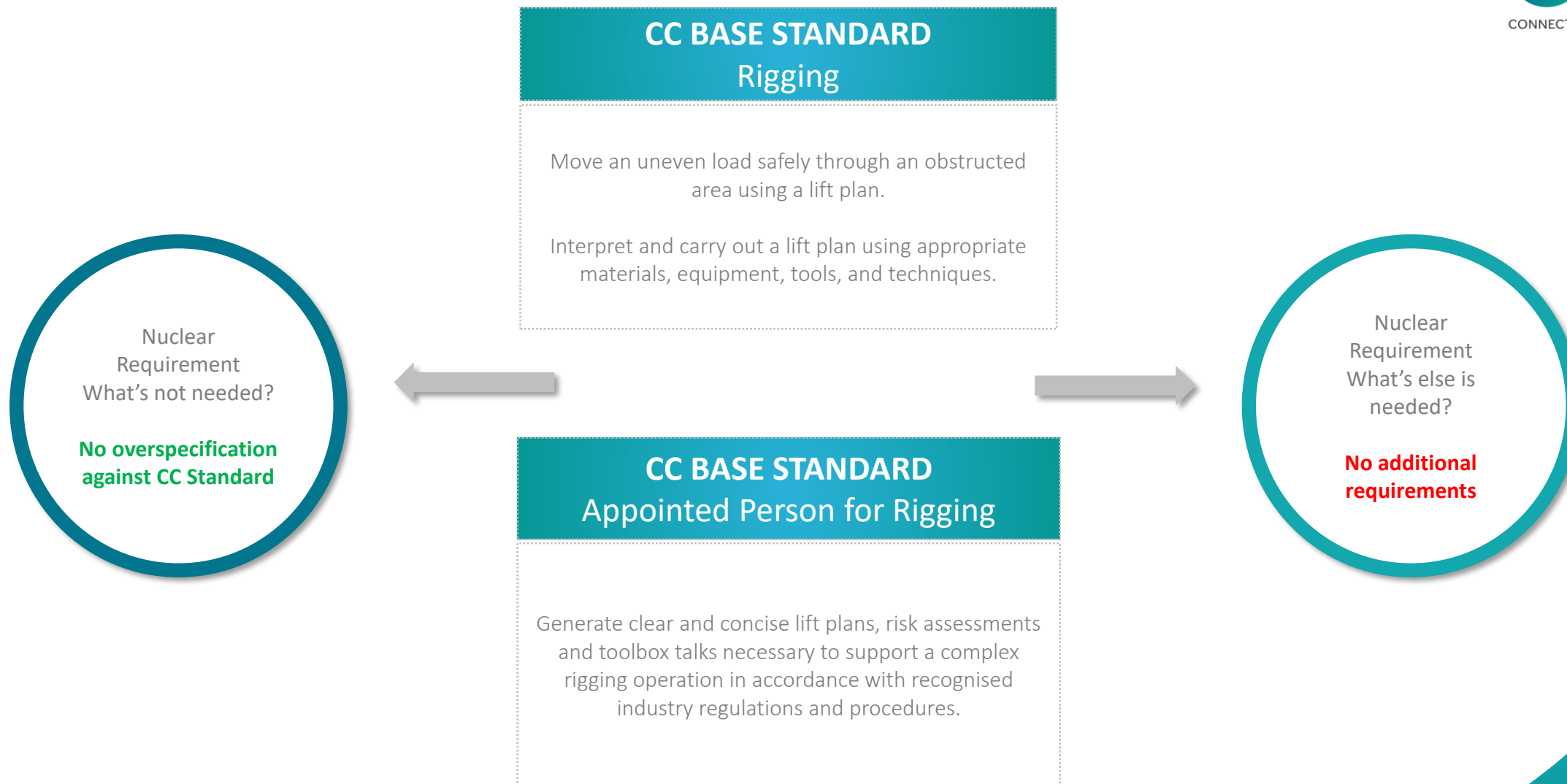


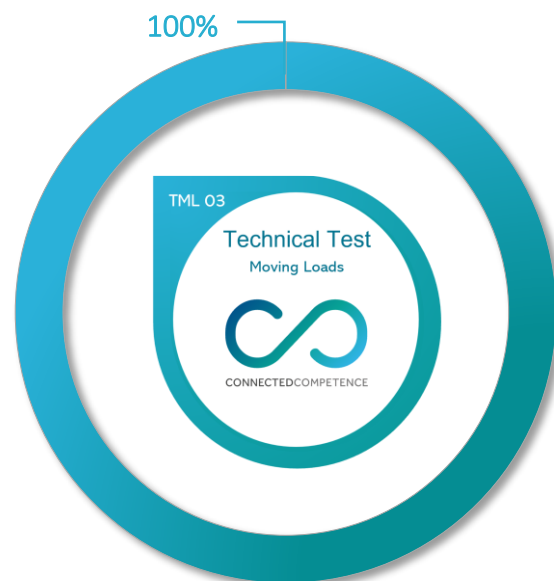
Nuclear Pipefitting Competence Profile matches Connected Competence Base Standard – **100%**





Nuclear Plating Competence Profile matches Connected Competence Base Standard – **100%**



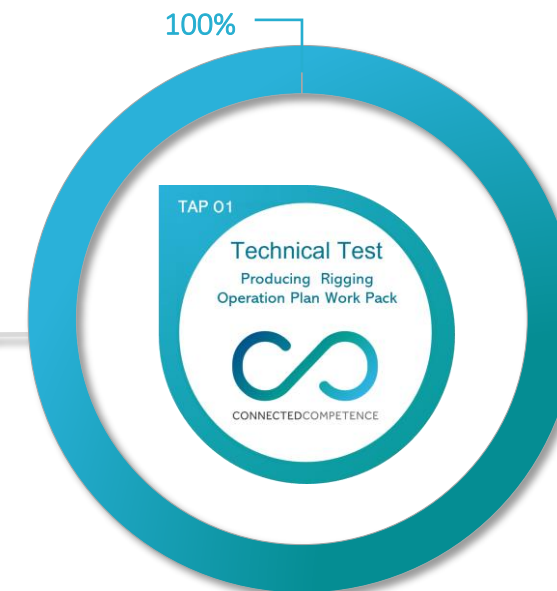


### Rigging

TML03 - Move an uneven load safely through an obstructed area using a lift plan.  
Interpret and carry out a lift plan using appropriate materials, equipment, tools, and techniques.

### Appointed Person for Rigging

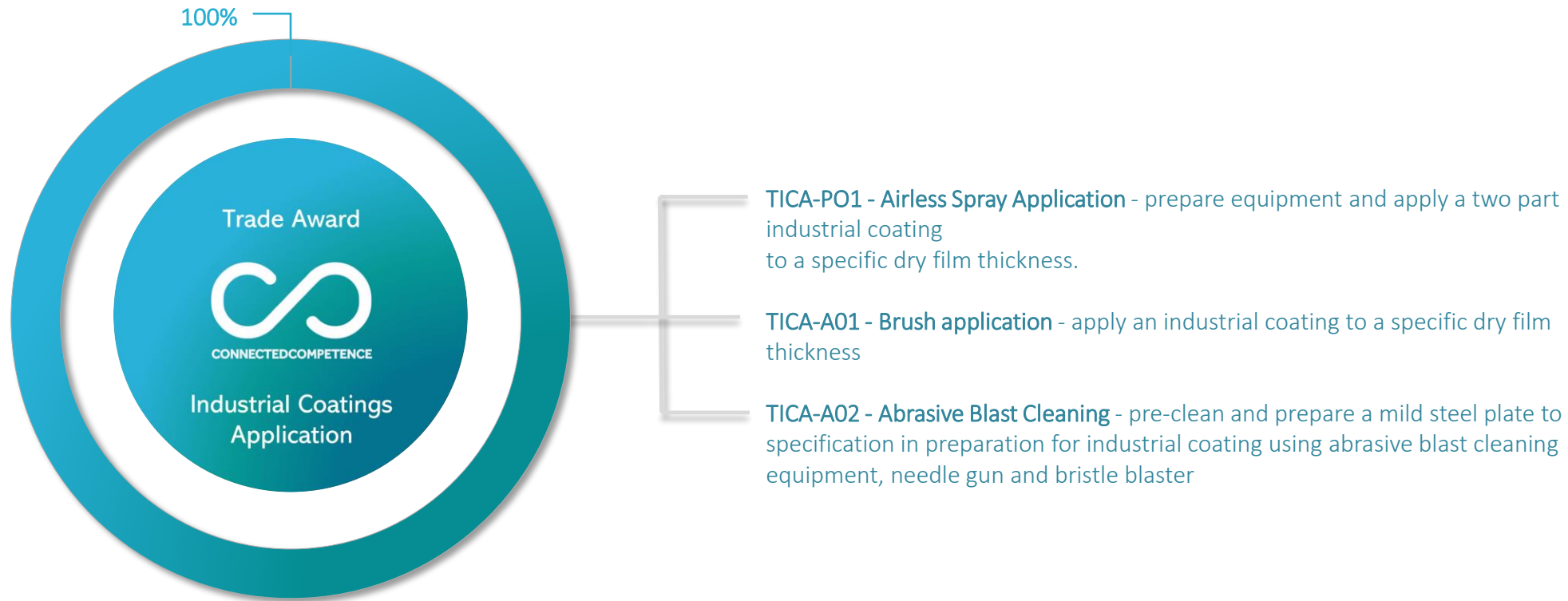
TAP01 - Generate clear and concise lift plans, risk assessments and toolbox talks necessary to support a complex rigging operation in accordance with recognised industry regulations and procedures.



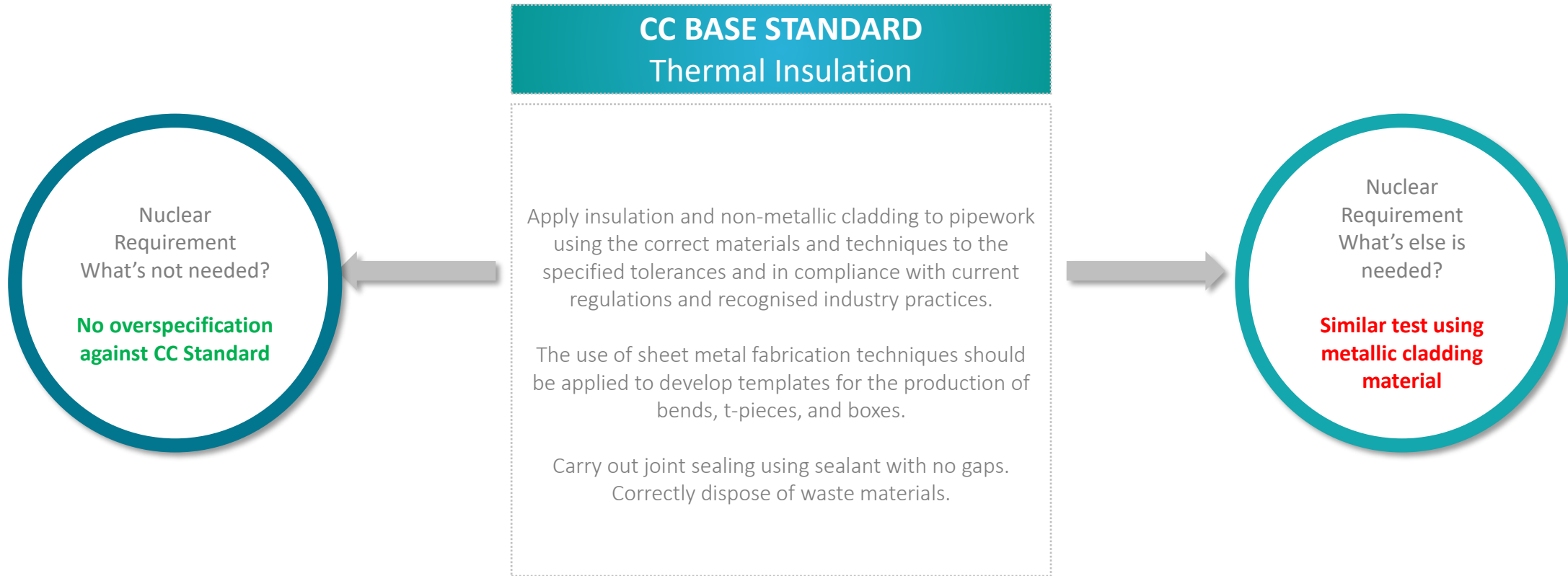
Rigger and Appointed Persons For Rigging Competence Profile matches Connected Competence Base Standard – **100%**

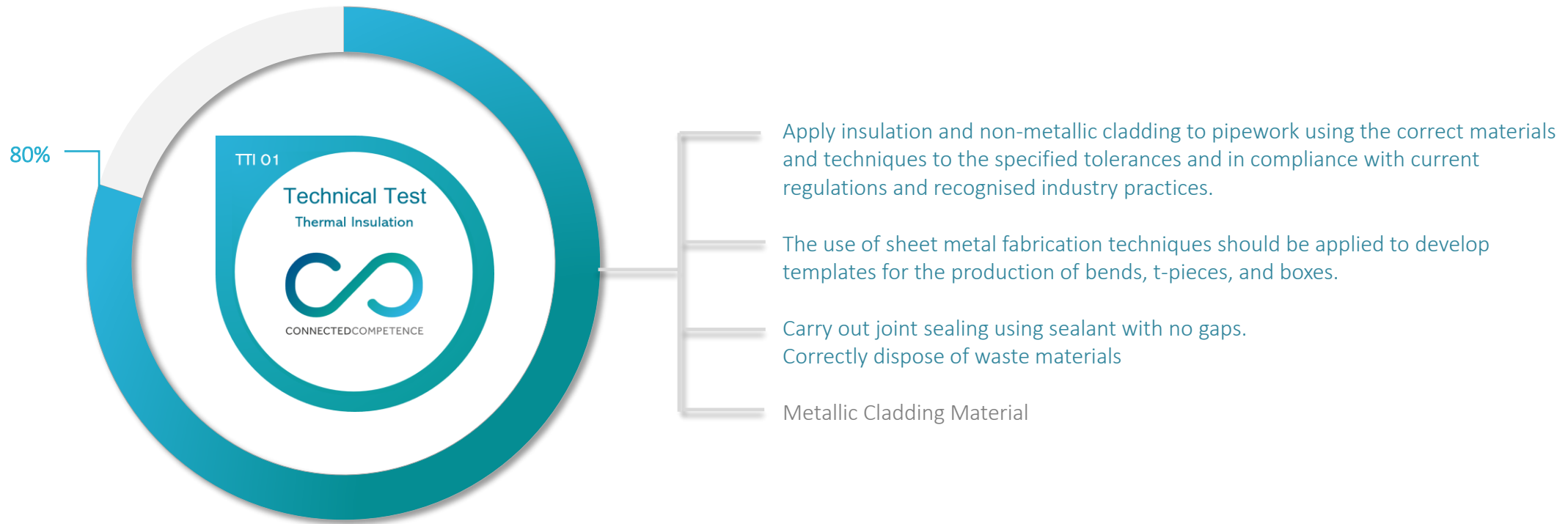






Nuclear Industrial Coatings Competence Profile matches Connected Competence Base Standard – **100%**





Nuclear Thermal Insulator Competence Profile matches Connected Competence Base Standard – **80%**