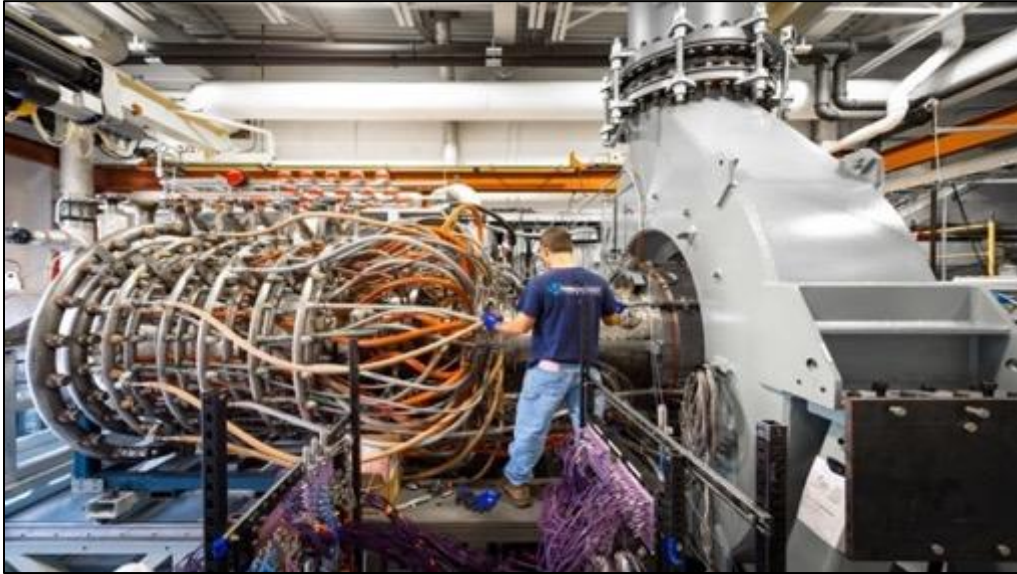




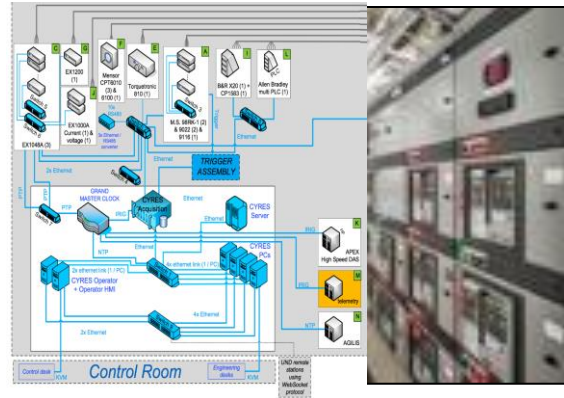
Scaled Turbomachinery Testing for sCO₂ Component Technology Development



Medium to Large Scale Turbomachinery Development



Ignition Park Infrastructure



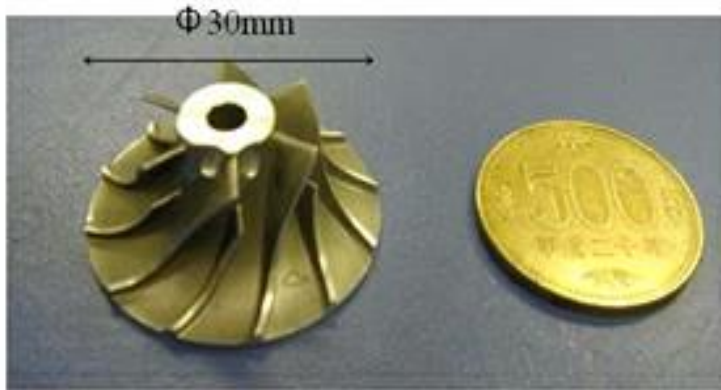
Turbomachinery Testing Capabilities

NDTL at Ignition Park operates four access controlled test cells supported by a fully capable services infrastructure



- Power / Thermal
 - 10 MW rig power capability
 - 12 MW heat rejection
- Variable speed motors and dynamometers
 - Full range of speeds for axial and centrifugal compressors
 - Turbine testing including cooling flow circuits
- Vacuum system
 - 10 psia @ 50 lbm/sec
 - 2 psia @ 10 lbm/sec
- Conditioned Air
 - 48 lbm/sec up to 180 psia
 - Temperature ranging from 100 – 1200 deg F

Testing for Turbomachinery Component Development



Centrifugal compressor



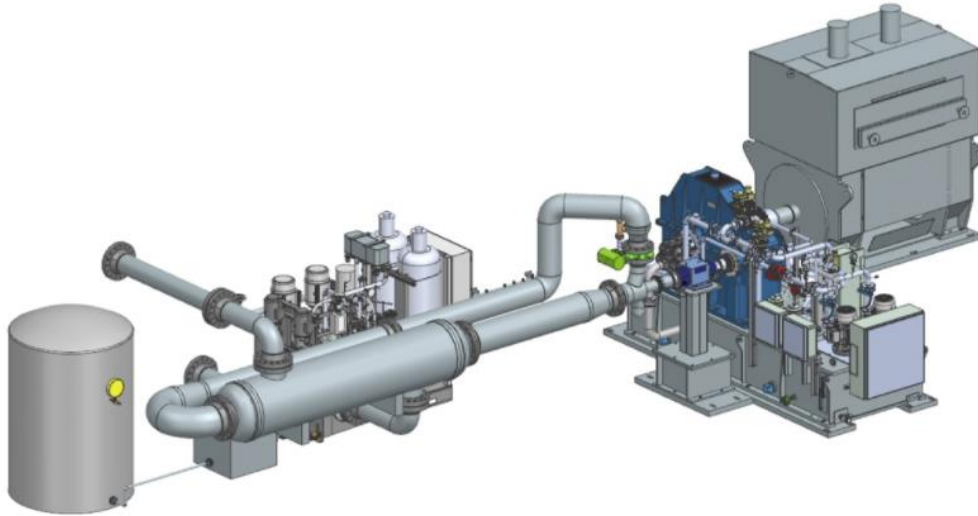
Very Small Scale

- Least Expensive
- Valuable for system studies.
- Limited component development

Utility scale

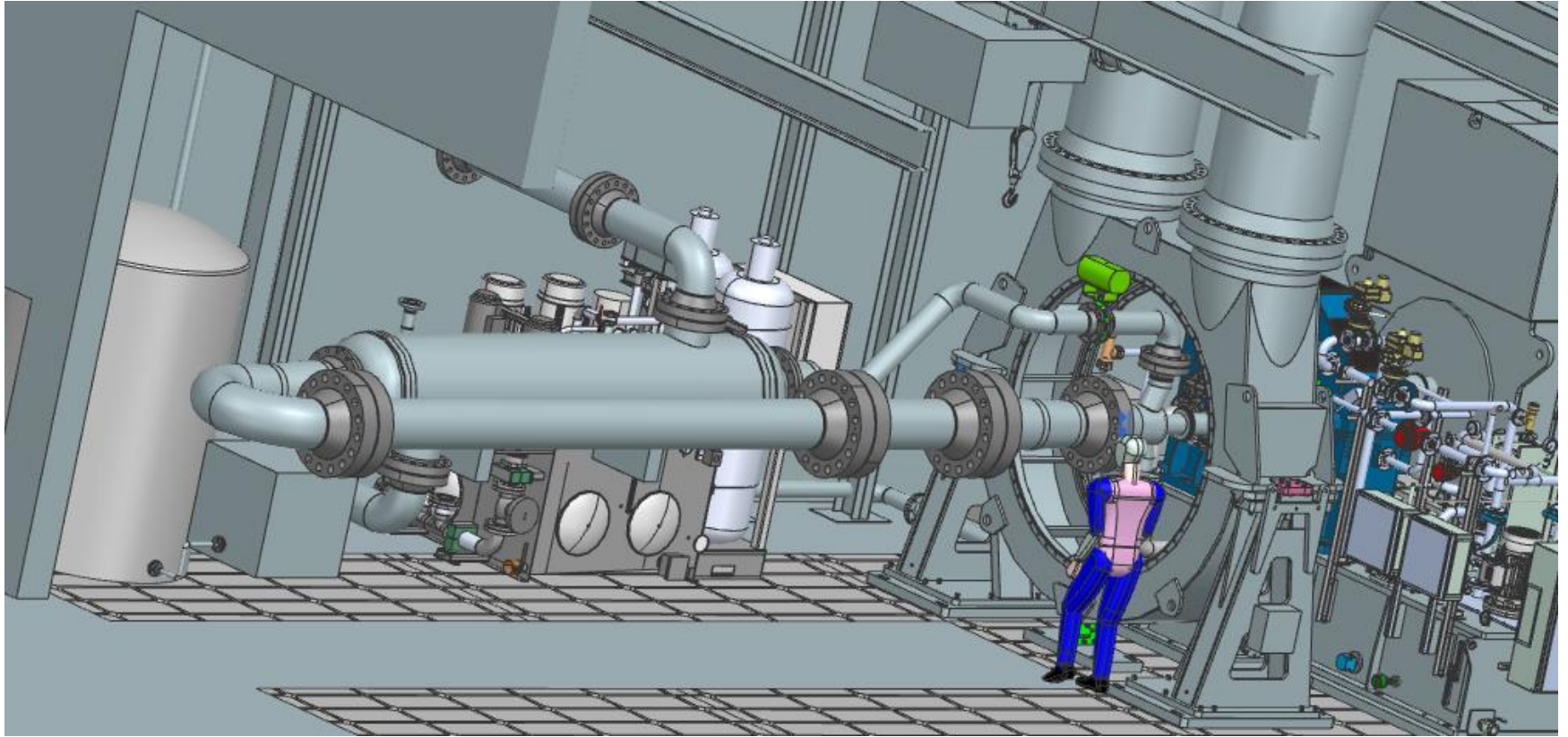
- Very high risk
- Most Expensive
- Limited component development

The “right” scale for component testing: 10MW



- Mid-cost
- Manufacturable to scale
- Instrumentation size requirements
- **Perfect for component technology development**

sCO₂ 10MW Component Test Facility



Critical for economics of technology development

- Consideration of the scale for testing
- Development of instrumentation
- Rapid technology improvements and transition to application

