

WALDRON

Case Studies on Planning, Engineering Design and Operations for CHP in Healthcare

Presented by Terence Waldron, PE

It's All About The Transitions



Case Studies – Three HealthCare CHP's

How to Transition between the Project Phases



Milford
Regional
Medical
Center



Brigham
&
Women's
BBF
Building



UMass
Medical
School

First Principles



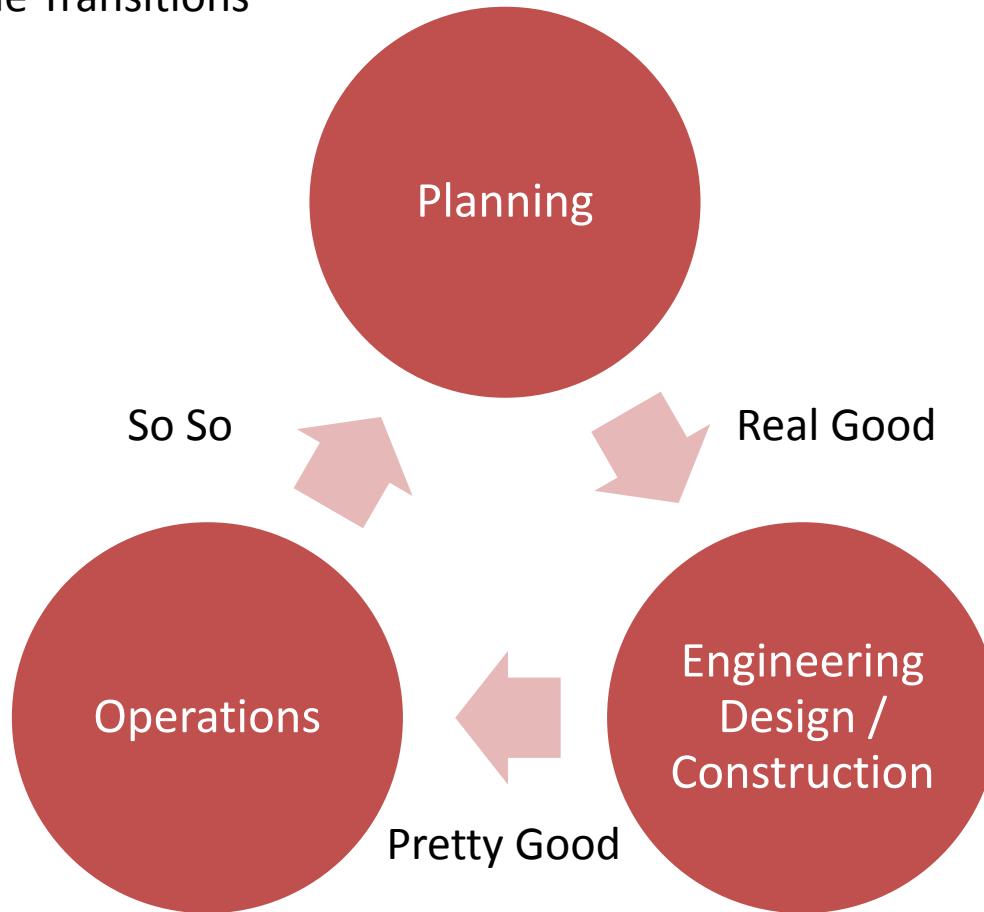
“Outcome” -
A Final Product or End Result



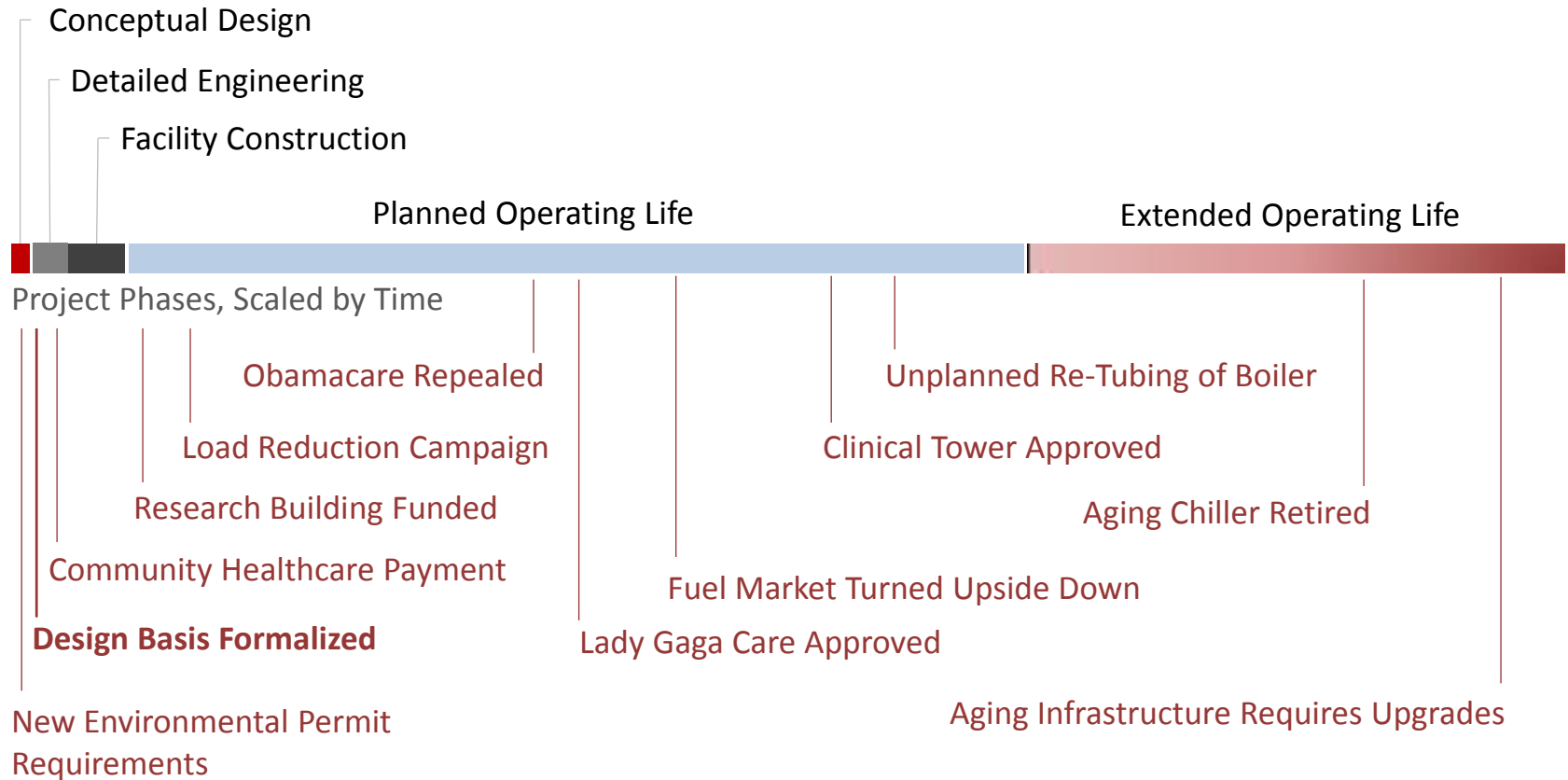
Project Goals –
Achieving a Set of Stated
Outcomes

Project Circle of Life

It's All About The Transitions



The Reality of Healthcare CHP Systems



System Conditions Change Often... (Continuously...)

Healthcare Policy is often the victim of political agendas

Planning – Assemble the Book of Facts

Facts

Known Knowns

- Existing Loads
- Utility Bills
- Tariffs
- Regulations

Projections

Known Unknowns

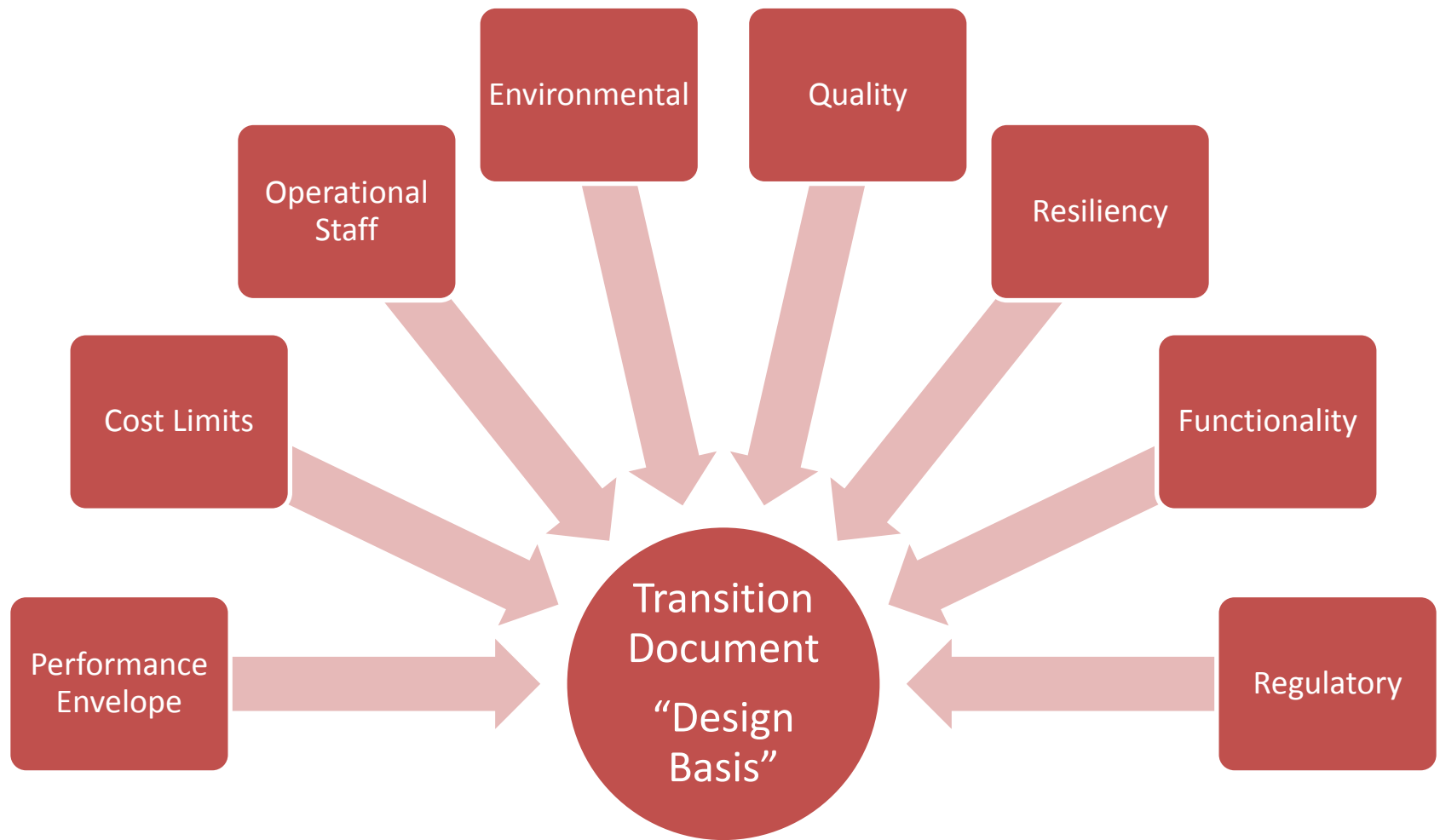
- Master Plans
- Future Tariffs
- Reimbursable
- Market Trends
- Energy Conservation

Bracketing

Unknown Knowns

- Politicians
- Natural Disasters
- Demographics

Planning – Document Outcomes

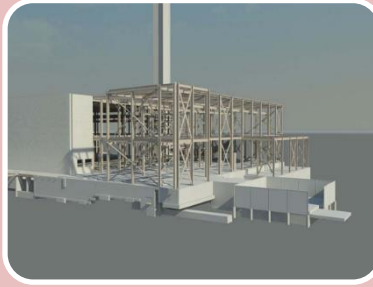


Engineering Design/Construction

Section 018110
Mechanical Design Criteria
4 MW Reciprocating Engine/Generator

Revision 1
Issued for Review
Drawing Job Number:
25038

Staff Engineer: _____ Date: _____
E. J. Waldron, Inc. E. J. Waldron, Inc.



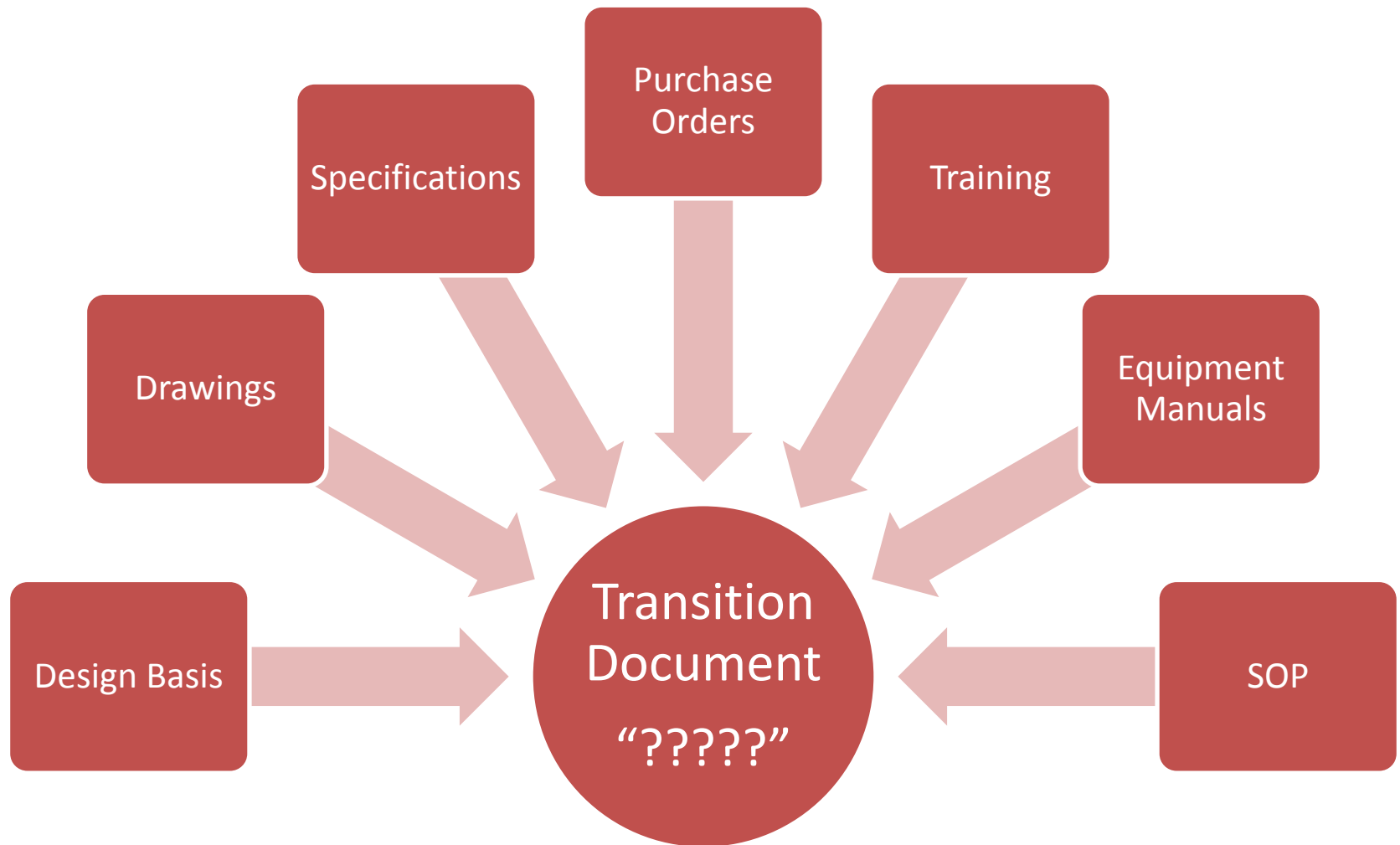
Design Basis

Engineering
Design

Construction
Reality

The transition from Planning to Engineering Design / Construction is usually pretty smooth.

E&C to Operations – Transition



Operations Back to Planning



Facilities are typically not re-planned based on the continuously changing reality



Healthcare facilities are subject to continuous change

Planning to Engineering

Transition Challenges

Milford



Packager led EPC
Shifted
Communication
Packager Led
Commissioning

BBF



CHP Engineer Placed
under MEP
CM Inexperienced
with CHP
Owners Technical
Advisor not fully
engaged
3rd Party Commission

UMMS



Engineer Maintained
Direct Responsibility
Inexperienced CM
Commissioning role

Engineering to Operations

Transition Challenges

Milford



No Formal Training on System
Hands off Operations
DOER Requirements
Interconnection

BBF



10 months from complete to Operations
CM Inexperienced with CHP
Owners Technical Advisor not fully engaged
3rd Party Commission

UMMS



Engineer Maintained Direct Responsibility
Inexperienced CM
Commissioning role
Experienced CHP Operators

Operations to Planning

Transition Challenges

Milford



Operator
Hands off Operations
New Building
Occupation

BBF



Staff Turnover
Planning Information
not available
Building Program
Changes
Islanding Operations
3rd Party Operations

UMMS



Phasing in Loads
Operations flip
Overstated MEP
Loads

Case Study Take Away

- Communication of Outcomes
- Too Many Cooks Coordinated by Inexperience.....
- Big Picture Guy Needs to Maintain Important Role Throughout
- Packagers make Great Packages
- Train Operations on the Proforma
- Clear Ownership of Performance
- On-Line Monitoring of Performance
- Re-Planning is Key

Quality Transitions Wins Races



Questions...

