BURNS McDONNELL

# NYISO 2019-2020 ICAP Demand Curve Reset

## NYISO ICAPWG Meeting

October 11, 2019

# Who is Burns & McDonnell

Large firm resources/ small firm responsiveness

Fully integrated engineering, architecture, construction, environmental and consulting firm

Relationship-focused with 90 percent repeat business

Leader in both design and construction

Vested interest in each client and project

Annual revenues of $3 billion

# Power Generation Solutions

Nuclear

Cogeneration
(28 projects,
1,400 MW)

Energy
Storage
(12+ projects,
600 MWH capacity)

Recips
(16 of last,
20 projects)

Biomass

Solar
(50+ projects,
5,000+ MW)

Gas
Turbines
(70+ projects,
42GW)

Wind
(200+ projects,
50GW)

# 2019-2020 ICAP Demand Curve Reset (DCR) Process

# BMcD's Role in DCR Process

## Phase 1

**Identification of Potential Peaking Plant Technologies**

- Technological Viability / Screening
- Technology Assessment
- Industry specific changes
- Regulatory considerations
- Developing technologies

## Phase 2

**Calculation of Gross Cost of New Entry (CONE)**

- Standard site selection
- Technology configuration
- Performance Selection
- Scoping selection
- Cost estimating

# Phase 1 – Potential Peaking Plant Technologies

- **Technological Viability / Screening**
  - **What technologies are technically acceptable for analysis?**
    - **Historical commercial operation**
    - **Number of units on-line**
    - **BACT/LAER and other environmental/permitting requirements**
    - **Basis for representative technology**
    - **Other screening criteria**
    - **Industry / regulatory driven changes**
- **Technology Assessment**
  - **How to compare differing technologies?**
    - Pricing (Use Case)
    - Time Limitation
    - Voltage Support Capability
    - Reserve Capability
    - Regulation Service Capability
    - New vs. Mature Technology

# Phase 2 – Calculation of Gross CONE

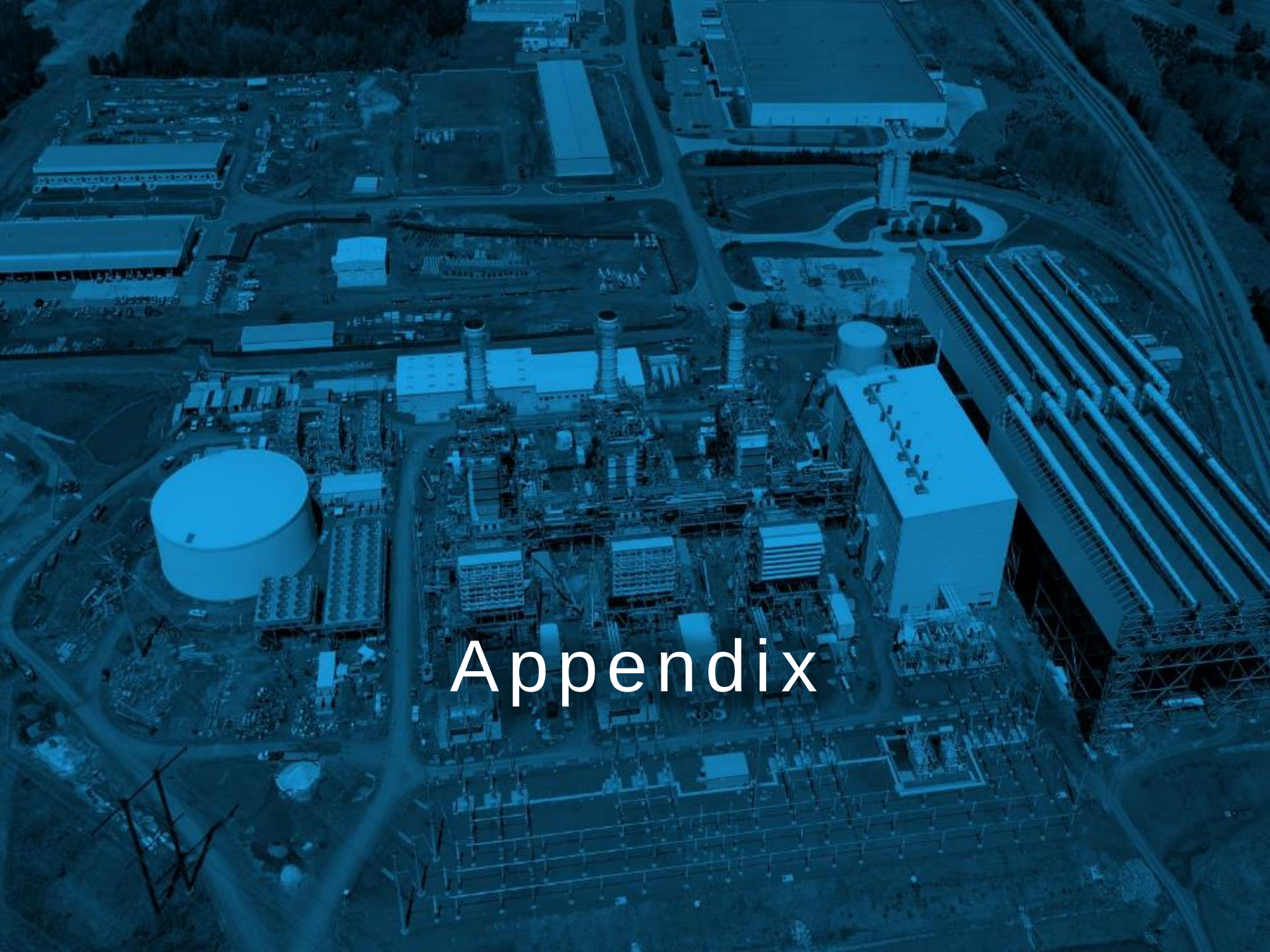
- **Site Selection**
  - Land/property/development costs (Including elevation/ambient conditions/storm hardening where applicable)
  - Interconnection Costs
- **Technology configuation**
  - Inlet Cooling
  - Power Augmentation
  - Fast start
  - Water Injection (NOx control)
  - Emissions Controls (e.g. Selective Catalytic Reduction [SCR] / CO Catalyst)
  - Dual Fuel Capability Considerations
- **Performance Selection**
  - Site Condition Criteria – ISO, summer/winter peak, summer/winter average, annual average

# Phase 2 – Calculation of Gross CONE

- **Scoping**
  - CapEx vs O&M Trade-offs
    - Storage/Water Treatment
    - Redundancy
    - Ammonia / Urea
    - Indoors / Outdoors
    - Access
- **Cost Estimate**
  - Labor Rates
  - Contracting Strategy
  - Financing

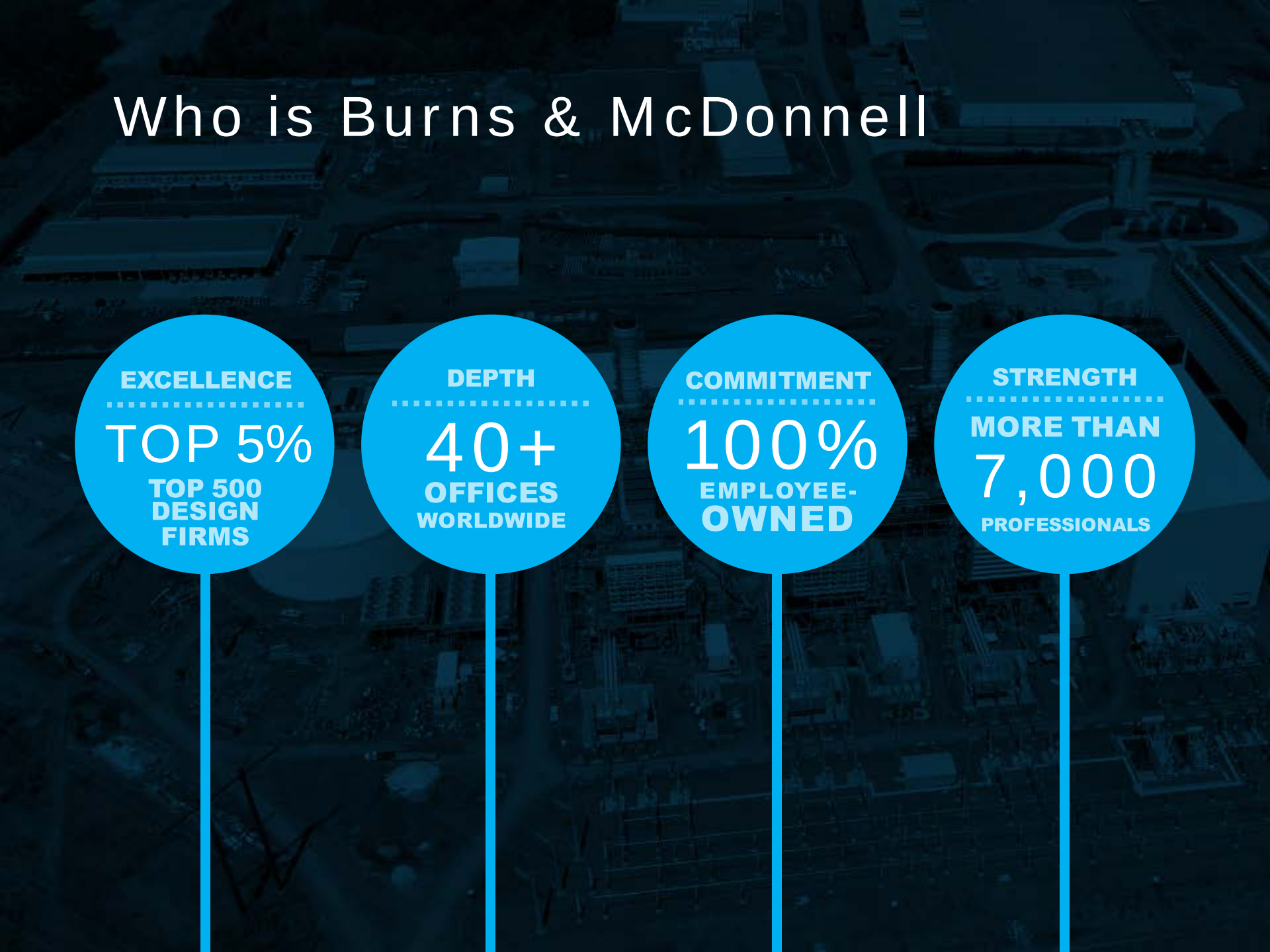
# Technologies to be Evaluated

- **SCGT Options**
  - F-Class Turbine
  - J/H-Class Turbine
  - 18MW RICE Engines
- **CCGT Options**
  - 1x1 H-Class
- **Renewables and Storage**
  - Solar
  - Battery



# Appendix

# Who is Burns & McDonnell



# Diversity in Power

- Gas Turbines
- Air quality control systems
- Electrical upgrades/black start
- Nuclear generation
- Reciprocating engines
- Water and wastewater
- Coal combustion residuals
- Combined heat and power
- Controls upgrades
- Solar
- Development/owner's engineer
- Performance and diagnostic measurements