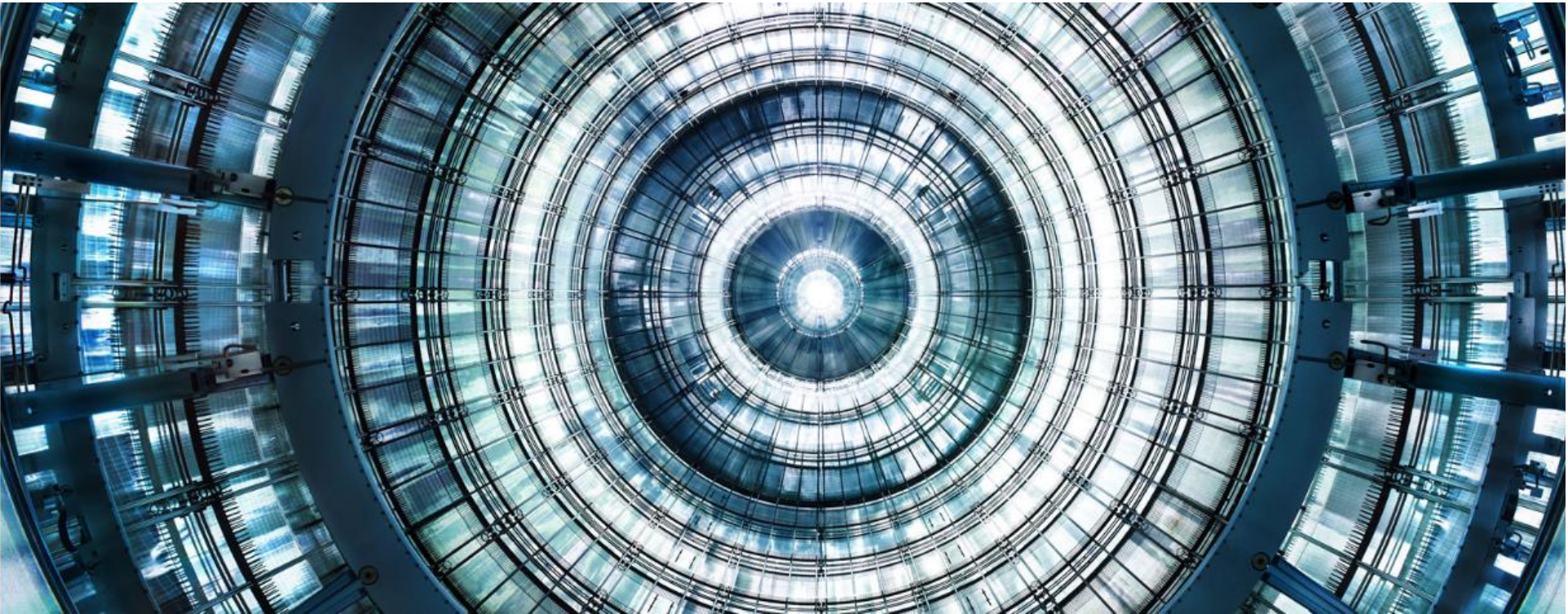


# Alternative Financing Solutions for Infrastructure Projects



ANDY PAHWA, EI

**Bernhard**

# Learning Objectives

- 1 Identify alternative methods of financing** for district energy and energy conservation projects, along with the primary considerations for selecting the best method for a facility/campus and understanding the technical and financial allocation of each risk.
- 2 List the steps of the various project delivery methods** for planning, designing, constructing, and operating district energy projects.
- 3 Discuss specific scenarios to compare and contrast the various approaches** and their impact from the Host Customer's perspective



# Learning Objectives

- Traditional (Design-Bid Build or Design-Build)
- Performance Contracting
- Concession/Asset Monetization



# Planning



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# Planning - Traditional

- Catalyst/Compelling Event:
  - Catastrophic or Repeated Equipment Failures
  - Increased Load
- Financed with Existing Operating Funds or Reserve Account; Capital Outlay or Philanthropic Donations
- Financed on a Tax-Exempt Basis for Non-Profit Host Customer
  - Revenue Bonds or General Obligation Bonds
- Financing is On-Balance Sheet and Construed as Debt

# Planning – Performance Contract

- Catalyst/Compelling Event:
  - Urgent Need for Renewal (and Savings)
- ESPC, Shared Savings, or Contingent Payment Performance Contract
- Financed with Tax-Exempt Bonds or Tax-Exempt Lease, Based in Large Part on Credit Rating of Host Customer
- No Upfront Capital is Expended
- Financing is Generally Considered On-Balance Sheet

# Planning – Concession

- Catalyst/Compelling Event:
  - Need for Upfront Capital, Cost Reduction Measures and Risk Transfer
- Purchase of Concession on Energy Assets or Direct Purchase of Energy Assets
- Very Common Procurement Method in UK, Australia, and Canada
- No Upfront Capital is Expended
- Financing is Generally Considered Off-Balance Sheet

# Design



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# Design - Traditional

- Consultant Engaged to Survey, Perform Analyses, Schematic Design
- Design Development
- Bid
- Cost Reduction Measures
  - Only Limited to What the Host Customer has Money to Pay for
  - Typically the Host Customer has Limited Capital to Fund Cost Reduction Measures and Projects are Completed on a Piece-Meal Basis after Something Breaks for the 10<sup>th</sup> Time

# Design – Performance Contract

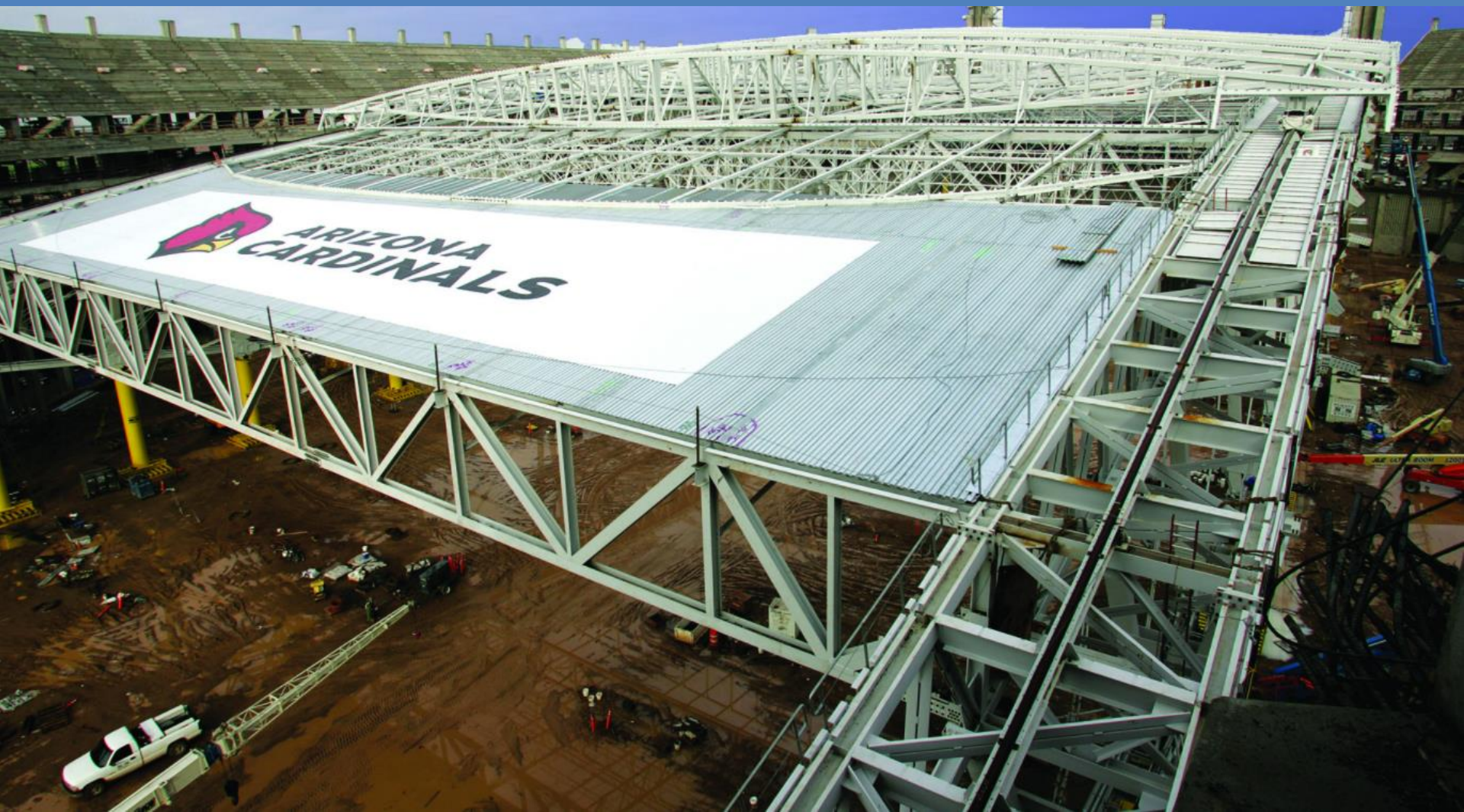
- ESCO Performs Detailed Due Diligence or Investment Grade Audit
- Identify Specific Cost Reduction Measures Subject to Simple Payback
  - Internal to the Facilities
    - Lighting, AHUs, BAS Upgrades
  - External
    - Chillers, Boilers, CHP
- Savings Must Pay for Cost Reduction Measures Over Term of Project (Typically 20 Years or Less)

# Design – Concession

- Concessionaire Engages in Project Development Agreement
- Performs Due Diligence in Aspects of Energy Engineering, Construction, Finance, Legal, Tax and Accounting
- Concessionaire May Get Paid for Due Diligence
- Compare Life Cycle of BAU vs. Concession
- Cost Reduction Measures
  - Can be Energy-Related, Water-Related, O&M Related
  - Concessionaire is Free to Perform CRM within Energy Assets (e.g. Replacement of Chiller)



# Construction



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# Construction - Traditional

- Design-Bid-Build
  - A/E/C is Engaged, Project is Bid, Construction Begins
  - Design Professional Typically Acts as Host Customer's Rep
  - Development and Construction Period 3-4x Long
  - Increased Risk Beyond 1 Year Warranty Period
  - Quasi-Adversarial Delivery Method
- Design Build
  - Similar to DBB
  - Development is Accelerated by One Host Customer Performing A/E/C
  - Slightly Less Adversarial

# Construction – Performance Contract

- Variation of Design-Build
- Bidding Process Based on Best Value/Best Solution
- Usually Limited to Many Large-Scale ESCOs and Few Regional ESCOs
- ESCO Responsible Through Construction, Commissioning, and Warranty Period
- Accelerated Development and Construction Period
  - Construction (and some O&M) Risks Mitigated
- Measurement and Verification of Savings
  - ESCO Must Make Up Any Shortfall



# Construction – Concession

- Concessionaire Provides Upfront Cash Upon Financial Close of Transaction
- Accelerated Design and Construction Period
  - True Turnkey Delivery
- Total Risk Transfer During Construction, Commissioning, and Long Term O&M
- Concessionaire Considers True Life Cycle Cost
- May or May Not be Done through Bidding Process
- Public Agency May Not have Procurement Method Available – Very Few States have “P3” Legislation for Social Infrastructure

# Operation



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# Operation –Traditional

- Host Customer is Responsible for O&M
  - Responsible for All Risks Associated with O&M (Equipment Failure, Faulty Operation, Failure to Provide Services)
- Host Customer Remains Responsible for Replacement and Renewal of Equipment
- Host Customer is Responsible for the Distribution and Delivery of Thermal Services
  - Customer Pays
    - Electric, Water, and Gas Bills
    - Other Public Service
    - O&M Costs



# Operation – Performance Contract

- Most Equipment Covered Under ESPC Warrants at Beginning of ESPC Term
- Facility O&M is Limited to Operational Responsibilities of Host Customer
  - Lot of Overlap – Ripe for Problems if Contract does not Specifically Spell Out who is Responsible for Faults or Failures
- Host Customer is Responsible for the Distribution and Delivery of Thermal Services
  - Customer Pays
    - Electric, Water, and Gas Bills
    - Other Public Service
    - O&M Costs

# Operation – Concession

- O&M Contract is Typically Included as Part of the Duties and Obligations in the Concession Agreement
- Concessionaire Responsible for Repair and Replacement, as well as Insurance Associated with Catastrophic Risks
- Concessionaire is Responsible for Providing Thermal Services (and Potentially Power) Under Thermal Services Agreement
- Host Customer Continues to Pay Utility Bills
- Provision of Thermal Services Can be Accompanied by Performance Guarantee Regarding Operating Efficiency of Plant

# Case Studies



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# University of Arkansas at Little Rock



- Existing Campus:
  - 2 Mil SF
  - \$5Mil/Year Utility Costs
- Campus Needs
  - 100% Power Back Up
  - Greenhouse Gas Emission Reduction Commitment

- Traditional Project
- Financed by University Bonds
- Contracted with Design and Construction Entities
- Implemented Energy Reduction Measures including Rate Tariff Negotiations
- Energy Savings Pledged to Repayment of Bonds



# Eastern New Mexico University

- Existing Campus
  - 6,000 students
  - 1.3 Mil SF
  - Average building Built in 1968
- Previous Work – Master Plan
  - District Energy Installation (2005-2013)
  - Lowest Energy Utilization & Lowest Cost per Student of any Public Institution in the State of NM



- Performance Contract
- Upgrade and Expand District Energy Systems
- Compress Remaining Work into One Large Project
- Realize Energy Savings Potential Sooner
- New Mexico Law

# Our Lady of the Lake Regional Medical Center

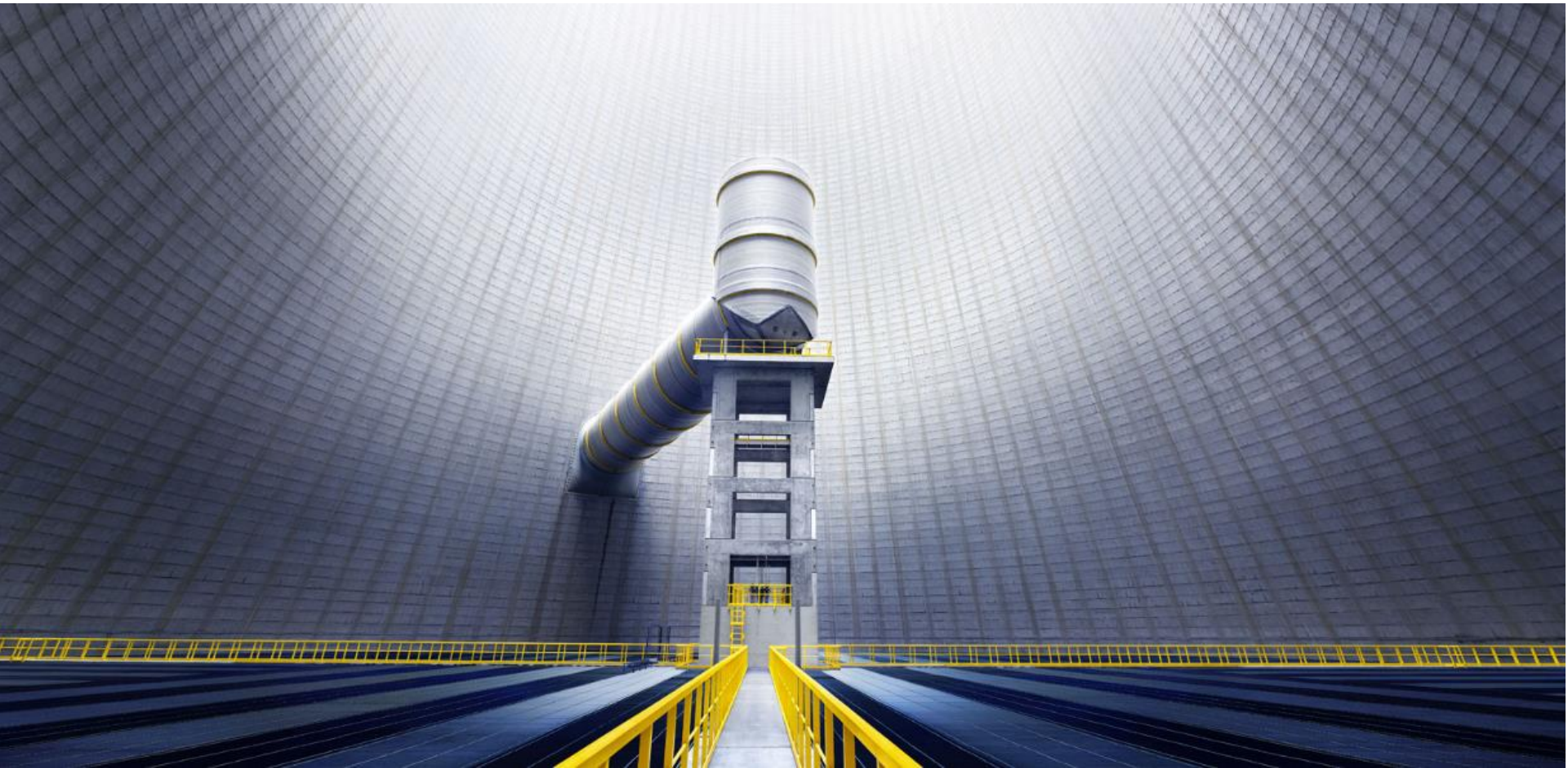


- Existing Hospital
  - 1.7 Mil SF
  - Energy Star: 7
- New Children's Hospital and MOB
  - 450,000 SF
  - Intended to Build Dedicated Central Plant

- Concession
- Upgrade Existing Infrastructure
- Extend District Energy Systems

- OLOL Purchases Chilled Water
- Avoids Capital Cost

# Thank You!



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