3rd Party Development Opportunities for CHP

California Energy Commission
IEPR Committee Workshop
July 23, 2009
Rod Schwass

Burns & McDonnell
SINCE 1898

Burns & McDonnell - Overview

- 100% Employee Owned
- 3000 Employees
- $1.2 Billion Revenue
- World Headquarters in Kansas City, MO
- 18 Regional Offices including San Diego and San Francisco

Over 113 years of power generation, utility and infrastructure experience

Markets Best Served by CHP

- Hospitals/Research
- Data Center/Telecommunications
- Department of Defense
- Universities and Colleges
- Municipalities

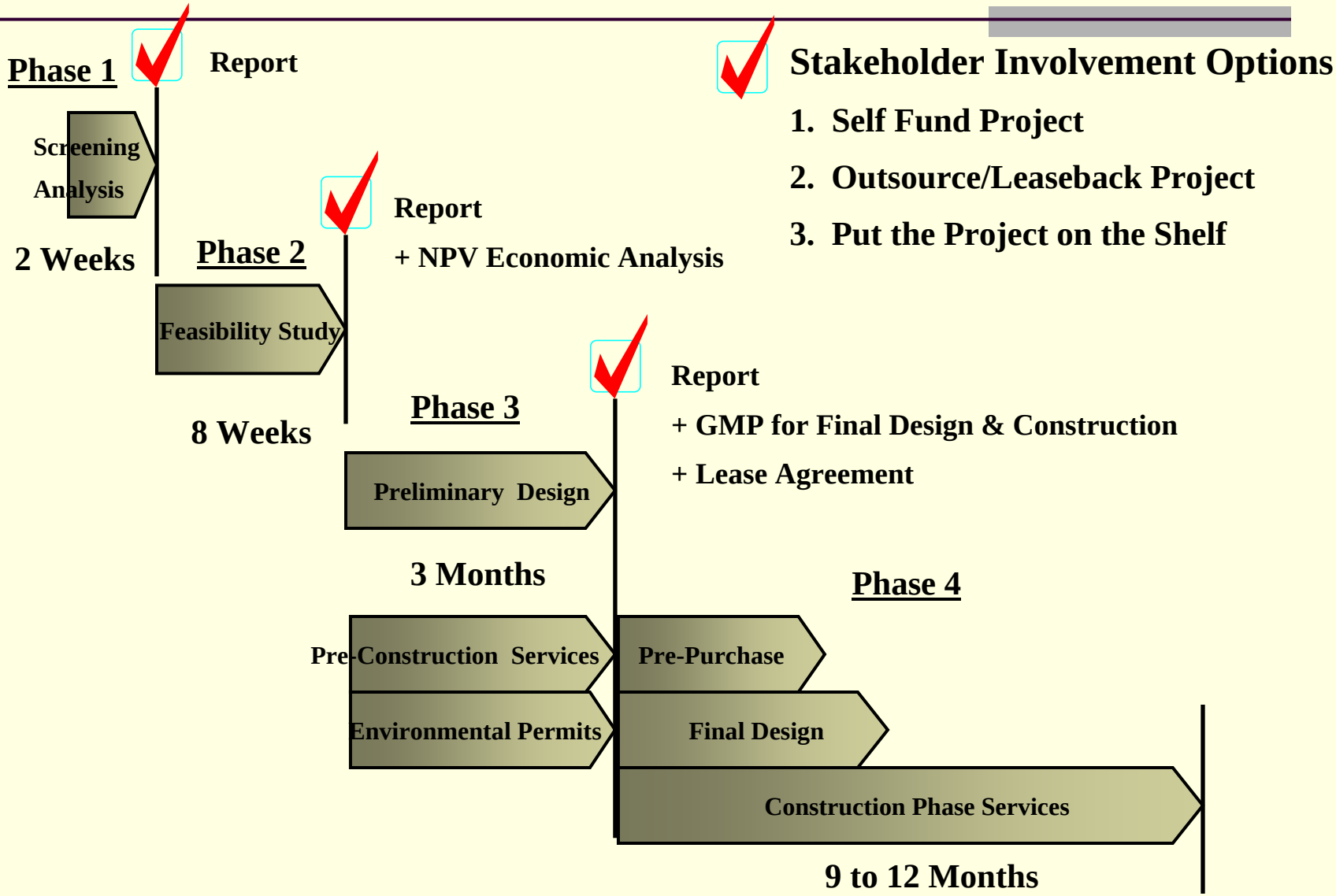
Facilities Best Suited for CHP

- CHP *"Best User" Profile* is:
  - Coincident electrical and thermal loads
  - 24 hour/day, 7 day/week, 365 day/year operation
  - Low seasonal variation in loads
  - High power reliability needs
- Hospitals fit the *"Best User" Profile* for Combined Heat and Power applications

Business Drivers for CHP

- ***Cleaner Normal Power*** Local generation is anticipated to provide fewer sags and surges. Conversion from primary power to grid backup is measured in “cycles” rather than “seconds”.
- ***More Backup Power*** Both Grid backups supply 100% of the Hospital’s needs; not just its Life Safety requirements; imagine no chillers or HVAC in August.
- ***More Reliable Backup Power*** Probability of failure of the traditional Hospital “grid plus backup” is 67% according to Primen Perspective’s *RX for Health Care Power Failures*, DE-PP-24, 11/2003
- ***“Island” Power*** In the event of a grid failure due to natural, technical, or terrorist causes, this strategic community asset will remain in operation when we need it most.
- ***Reliable Normal Power*** When a hospital converts to fully digital Medical Records, RFID/Bar Code Scan Drug delivery, Computerized Physician Order Entry, etc., *health care delivery will stop if the “lights go out”.*

CHP Project Methodology



CHP Project Development Matrix

	Phase 1	Phase 2	Phase 3	Phase 4
DB	Review energy survey and utility data; run CHP computer model to analyze economics	Develop base case, schematic design of CHP options; NPV analysis	Select CHP option; preliminary design; establish GMP; pre-construction services, permit applications	Final design procurement & construction; start-up & commissioning
FO		NPV of financing options, analysis; prepare/review bond lease	Lender proposal, negotiate lease, construction loan and sign lease agreement	Permanent loan and CHP closing
OM		Establish O&M costs	Third-party O&M proposal	Negotiate and sign O&M contract

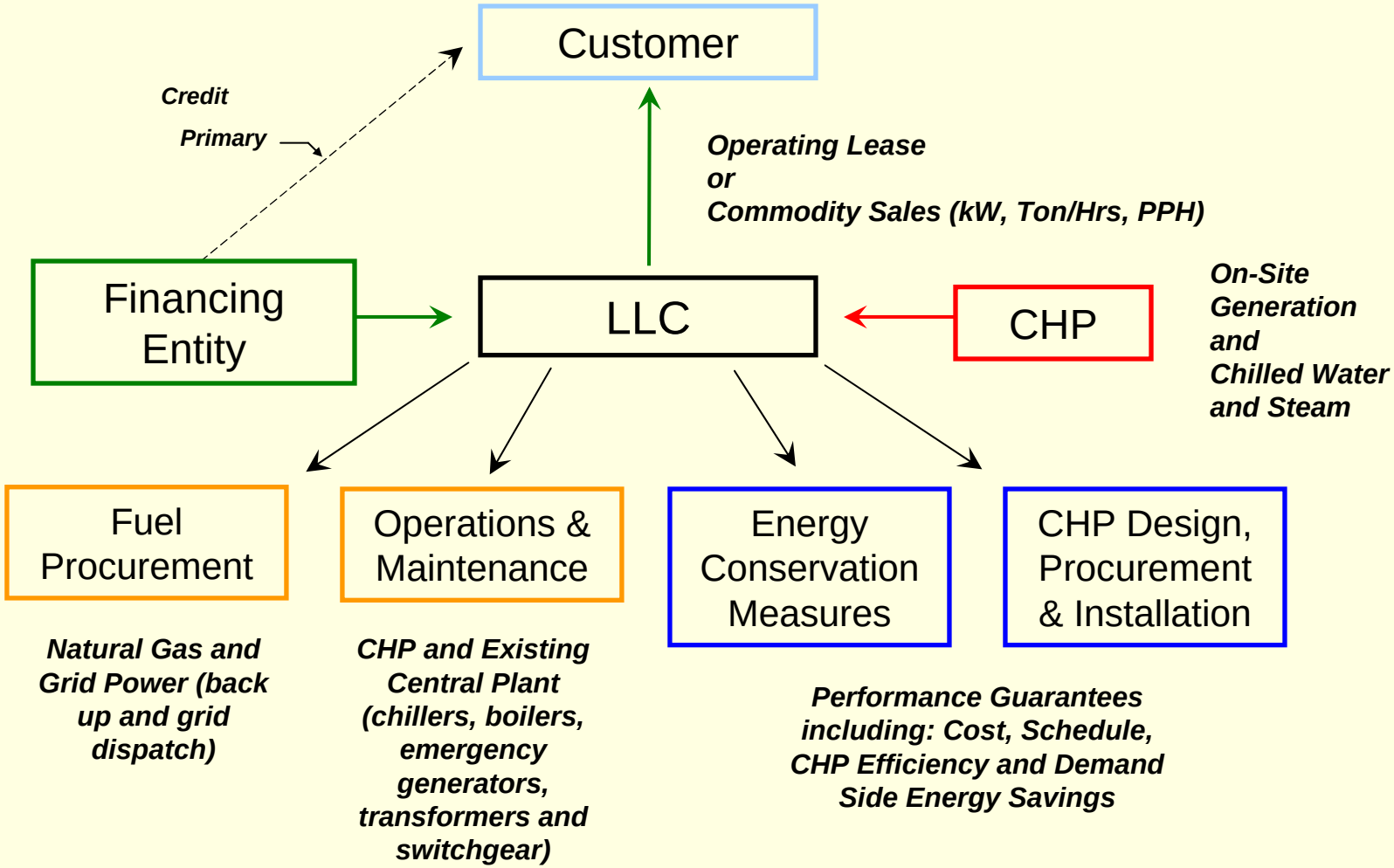
Financing Mechanisms

- Off Balance Sheet Financing
  - Protect the balance sheet of the borrower/lessee from underlying debt
- Financing Alternatives
  - Operating leases – defined by *"FASB 13"*
  - Capital leases – *"note and security"*
  - True lease – hybrid offering *"purchase option"*
  - Leverage lease – bond equivalent with *"no purchase option"* only *"lease renewal"*

Outsourcing Alternatives

- Finance, design-build, own and operate
  - Local utility company
  - Energy Services Company (ESCo)
- Terms and conditions will vary
  - Energy services agreement
  - Commodity sales agreement
- Public private partnerships
  - Public and private entities partner to benefit the community

Typical Outsourcing Business Structure



State Level Programs to Encourage Clean Energy

1. Renewable Portfolio Standard (RPS)
2. Standardized Interconnection Rules
3. Public Benefit Funds (PBF) for State Clean Energy Programs
4. Utility Standby Rates
5. Output Based Environmental Regulations (OBR)

Federal Level - Energy Improvement and Extension Act of 2008

- Included provisions for CHP and recycled-energy projects:
  - 10% investment tax credit:
    - Applicable to project of up to 50 megawatts
    - Applicable to the first 15 megawatts
    - Worth $1.35/MWh over project life
  - 5-year accelerated depreciation:

Federal Level - American Recovery and Reinvestment Act

- Provides “refundability” for CHP tax credit
- Allows “bonus depreciation” for CHP:
  - 50% of depreciation value can be taken in the first year
  - Remainder over the following four years
- Allows CHP tax credits even if projects are financed with local development bonds
- Allows biomass projects to claim a 30% investment tax credit
- Provides some $100 billion of additional government-backed loan guarantees for clean energy projects
- Offers $156 million of cost-share grants for recycled-energy, CHP, and industrial-efficiency projects

Federal Level - Waxman Markey Bill Passed by the House June 26

- Mandates GHG-emissions reduction by 83% by 2050
- Sets industrial plant energy efficiency standards
- Authorizes thermal waste energy recovery awards
- Mandates 20% clean energy by 2020, 8% from efficiency
- Expands biomass definition to reward co-firing
- Industrial rebates for GHG compliance costs
- Creates a Clean Energy Deployment Administration to help finance breakthrough technologies
- Allows CHP to qualify for energy saving performance contracts at federal buildings

Federal Level - Proposed Tax Provisions for 2009

- Increase investment tax credit to 30% for highly efficient CHP and recycled energy projects
- Increase the ITC's eligibility from 15 to 25 megawatts for projects of unlimited size
- Remove prohibitions against co-firing in the biomass production tax credit

CHP - Benefits to Utilities

- *"Demand Side Management"* costs less than constructing new conventional power plants.
- Allows for the integration of *"state-of-the-art"* technologies improving efficiency and demonstrating environmental responsibility
- Useful to Utilities for grid power management
- Avoids Utility Investment where the grid is insufficient due to congestion or in rural areas where it is underdeveloped.

CHP at Existing Facilities…

- May need to first consider current energy usage, efficiency, and age or condition of existing equipment- *chillers, boilers, HVAC, lighting, controls, emergency generators, etc.*
- Energy conservation measures create savings that may offset the capital cost of implementing CHP
- ESCo's offer *"performance contracting"* where they will *"guarantee"* the annual energy savings and incorporate CHP as part of the energy conservation measure program

Questions?

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Thank You for Your Attention

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