PANNONE LOPES DEVEREAUX & O'GARA LLC

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Public-Private Partnership Opportunities for Water and Water Resource Recovery Utility Energy Projects

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Presentation Overview

- **Project Landscape & Drivers**
  - WRF Project Overview
  - Energy Profiles at W&WRRUs and Role of P3s
  - Drivers of Energy Projects at W&WRRUs
  - Drivers of P3s and Structuring P3 Energy Projects

- **Utility Case Studies**
  - P3 Energy Project Case Studies Overview
  - Highlighted Case Studies

- **Best Practices for W&WRRUs P3 Energy Projects**
  - Energy Priorities and Utility Project Selection
  - Socializing the P3 Project and Making the Case
  - Approaching P3 Procurement and Selecting a Partner
  - Creating a Win-Win Partnership

Project Landscape & Drivers

WRF Project Overview

- **Assessment of P3 Energy Project Opportunities at W&WRRUs**
  - Conduct comprehensive literature review
  - Develop utility case studies
  - Produce final report with best practices and recommendations
- **Co-Funders**
  - Water Research Foundation (WRF) – project lead
  - Water Environment & Reuse Foundation
- **Research Team**
  - Bruce Tobey, PLDO
  - Emily Hammond, The George Washington University Law School
  - Sean McGinnis, The Horinko Group

Energy at WWUs and Role of P3s

- **~10%** of a community's annual budget spent on energy
  - **~30-40%** of total energy consumed by community's W&WRRUs
  - Collectively, W&WRRUs spend **~$4 Billion** annually on energy, representing **~3-4%** of U.S. energy consumed

- **Efficiency** measures can reduce costs as much as **~25%** and on average **~10%**

- **Resource recovery** of biogas and other renewable electricity generation offer significant benefits

Stat Sources: U.S. DoE and U.S. EPA

Energy at WWUs and Role of P3s

- Energy projects can provide **cost savings**, introduce **new revenue** streams, provide **tax benefits**, and **reduce environmental footprint** of the facility

- Energy project attributes can be monetized to leverage the potential of **public-private partnerships** (P3s)

- **A P3 is** a contractual arrangement between the public and private sector, sharing skills, assets, risks, and rewards, to jointly deliver a service or a project.

Drivers of Energy Projects at W&WRRUs

- **Engineering Drivers** – save costs, upgrade equipment, enhance reliability, and manage resource streams

- **Environmental/Sustainability Drivers** – reduce emissions, build resilience, and enhance social responsibility

- **Federal Statutory and Regulatory Drivers** – investment and production tax credits, policies promoting renewable energy, market incentives

- **State Statutory and Regulatory Drivers** – provide grant funding, set standards, create secondary markets, authorize contracting mechanisms

Energy Project Landscape

- **Demand-Side Measures**
  - Energy efficiency upgrades, demand response
- **Combined Heat and Power**
  - Biogas resource recovery technologies and applications
- **Alternative Biogas Applications**
  - Treat and feed into natural gas pipeline
- **Non-Emitting Renewables**
  - Solar, wind, in-pipe and effluent hydro

Drivers of P3s

- **Access to Private Sector Expertise** – industry-wide best practices, advanced technologies, enhanced asset management

- **Efficiency Gains** – economies of scale, input optimization, integrated project delivery, cost and performance guarantees

- **Transfer of Risk** – regulatory, financial, managerial, performance and technology, project delivery, projections

Drivers of P3s

- **Value for Money** – project delivery evaluation, life cycle accounting of costs, risks and benefits, making the business case

- **Alternative Financing** – access to capital, avoid adding to public debt, leverage guaranteed cost savings

- **Accountability** – outcome-based contractual nature, performance specifications, transparency and oversight

Structuring P3 Energy Projects

- **Energy Savings Performance Contracts (ESPC)**
  - Combination of project financing-design-upgrading
  - Leverage guaranteed cost savings

- **Power Purchase Agreements (PPA)**
  - Guaranteed price on electricity
  - Dedicated revenue and tax credits attract investors
  - Often paired with, or functions as, a P3 Agreement

Structuring P3 Energy Projects

- **Alternative Delivery Model Based on Best Value**
  - Private partner assumes full responsibility of timely new project financing, delivery, operations, and performance
  - PPA is key contracting mechanism
  - DBOOT: Common P3 energy project model

- **Leases**
  - Permits use or access to assets
  - PPA is key contracting mechanism

Utility Case Studies

Case Study Focus and Goals

- **Focus: Five Case Studies**
  - Rockland County Sewer District #1, NY – ESPC
  - Village of Ridgewood, NJ – Solar and cogeneration PPA
  - City of Thousand Oaks, CA – Solar and cogeneration PPA
  - San Antonio Water System – Methane collection project
  - Portland Water Bureau (OR) – In-line hydro project

- **Goals**
  - Mix of water and water resource recovery utilities
  - Variety of project types
  - Geographic diversity
  - Differing endpoints

City of Thousand Oaks, CA

- **Participants**
  - Public
    - Hill Canyon Wastewater Treatment Plant (HCTP) - acting through the City
  - Private
    - Biogas
      - US Energy Services (assigned to Municipal Energy Systems, Inc. (MES))
      - CHP Clean Energy, LLC (via assignment from MES)
    - Solar
      - Solar Star TO, LLC

City of Thousand Oaks, CA

- **Objectives**
  - Public
    - Enhanced generation and beneficial re-use of methane
    - Development of potential solar energy
    - Energy self-sufficiency
    - Revenue stream/cost-avoided
  - Private
    - Return on investment

City of Thousand Oaks, CA

- **Process**
  - Consensus-based up-front decision
  - Procurement process, negotiation of contract, and governing body approval
  - Follow-up procurements and contractual adjustments
  - Project results

- **Project Results**
  - Power infrastructure creation
  - Power generation
  - Financial impacts
    - HCTP
      - Savings on power costs due to terms of PPA
    - Private partners
      - Revenue from PPA sales
      - Assignment of clean energy grant proceeds
  - Environmental benefits

Rockland County Sewer District #1, NY

- **Participants**
  - Public – RCSD#1
  - Private – Siemens Building Technologies, Inc.

- **Objectives**
  - Public
    - Beneficial re-use of methane
    - Energy savings through facility rehab, retrofit, and efficiency measures
    - Financial savings
  - Private
    - Sharing in savings from avoided costs

Rockland County Sewer District #1, NY

- **Process**
  - RCSD#1 review of option and decision to proceed
  - RFP, negotiation of contract, board approval, county executive approval and county legislature approval

- **Project Results**
  - Contract award halted

Best Practices for W&WRRUs P3 Energy Projects

Best Practices for W&WRRU P3 Energy Projects

- **Energy Priorities and Utility Project Selection**
  - Developing energy priorities and creating an action plan
  - Thinking in terms of risk allocation
  - Project evaluation and Value for Money analysis

- **Socializing the P3 Project and Making the Case**
  - Role of the political champion
  - Engaging and educating *all* stakeholders
  - Importance of 100% commitment to P3 socialization process

Best Practices for W&WRRU P3 Energy Projects

- **Approaching P3 Procurement and Selecting a Partner**
  - Designing the procurement process
  - Reviewing project proposals
  - Selecting the optimal partner

- **Creating a Win-Win Partnership**
  - Crafting a win-win contract
  - Achieving project success

Conclusion

- As W&WRRUs continue to stress **sustainability**, **cost-cutting**, **revenue stream development**, and **enhanced reliability**, there is good reason to consider the **P3 tool** as a means to achieve energy project goals.

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