



# POWERING THE PARKS AT WALTER REED

INTEGRATING DISTRICT ENERGY INTO THE REDEVELOPMENT OF THE WALTER REED  
CAMPUS

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# POWERING THE PARKS AT WALTER REED

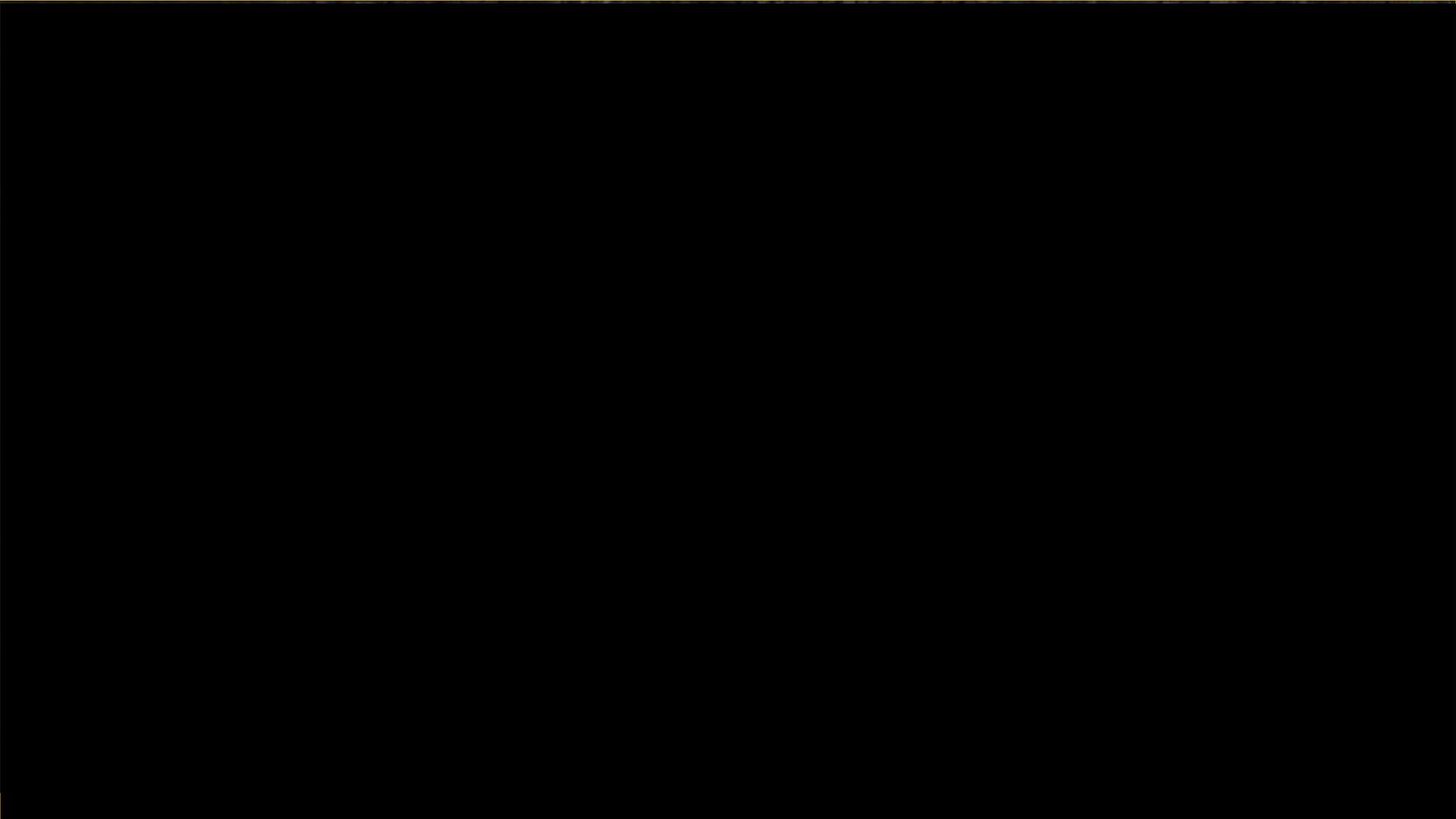
The Parks at Walter Reed is a 66 Acre parcel of land that had been slated for redevelopment subsequent to decision by the US Army to decommission base operations.

The facility has been acquired by a real estate development team to develop facilities to support residential and light commercial occupancy.

Under a competitive request for proposal, WGL Energy was selected to develop the district energy solution that would provide all energy and commodity for the developed site.

This presentation discusses the approach, conceptual design, development challenges and ultimate lessons learned from the evolution of the TPWR Project



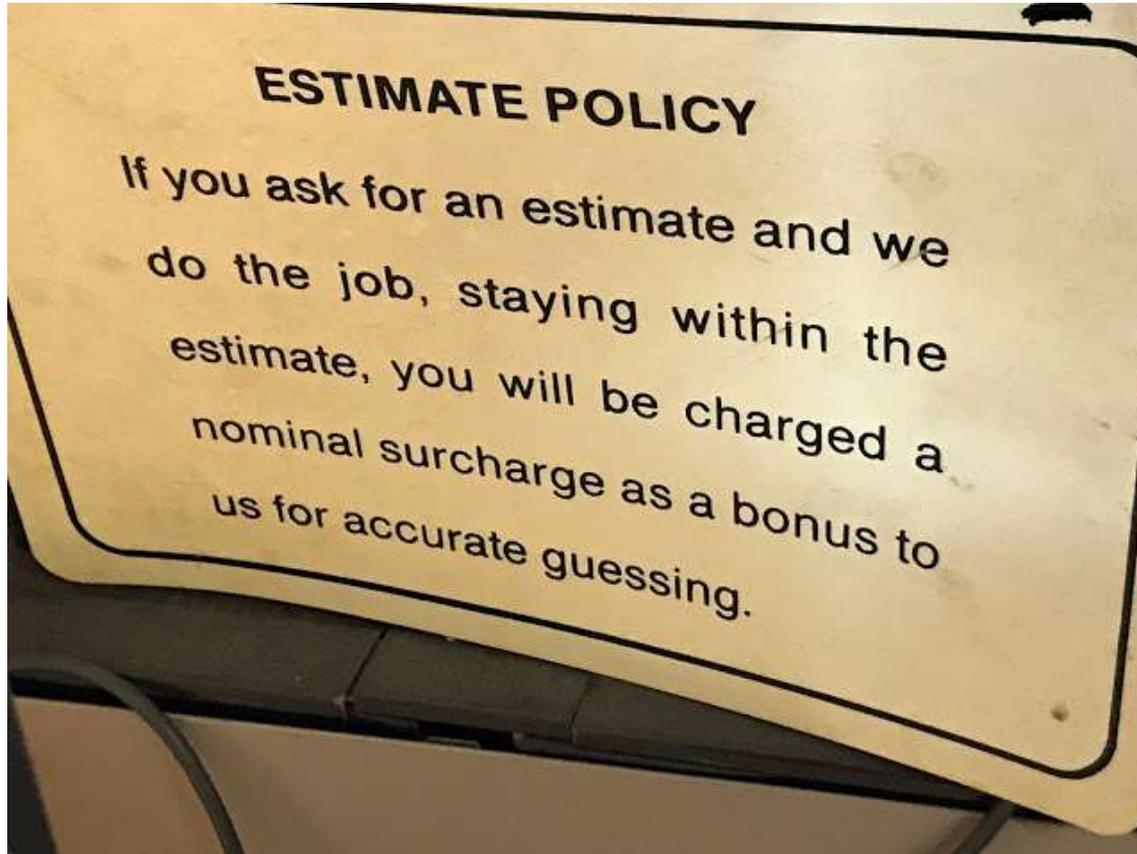


TPWR PROPOSED SOLUTION

# TECHNICAL SOLUTION



# SIZING THE SYSTEM – EXERCISE IN ESTIMATION



- Loads for the projected development were carefully and meticulously modeled – Using rules of thumb, conceptual designs and speculative development schedules  
In other words, **GUESSING**
- Although it was very good guessing based in as much fact as could be determined, the amount and timing of load was essentially speculative so it was essential in the design of the system to maintain flexibility to allow for growth of a solution as development progressed
- While technically this situation was creatively addressed, it created significant contracting complexity

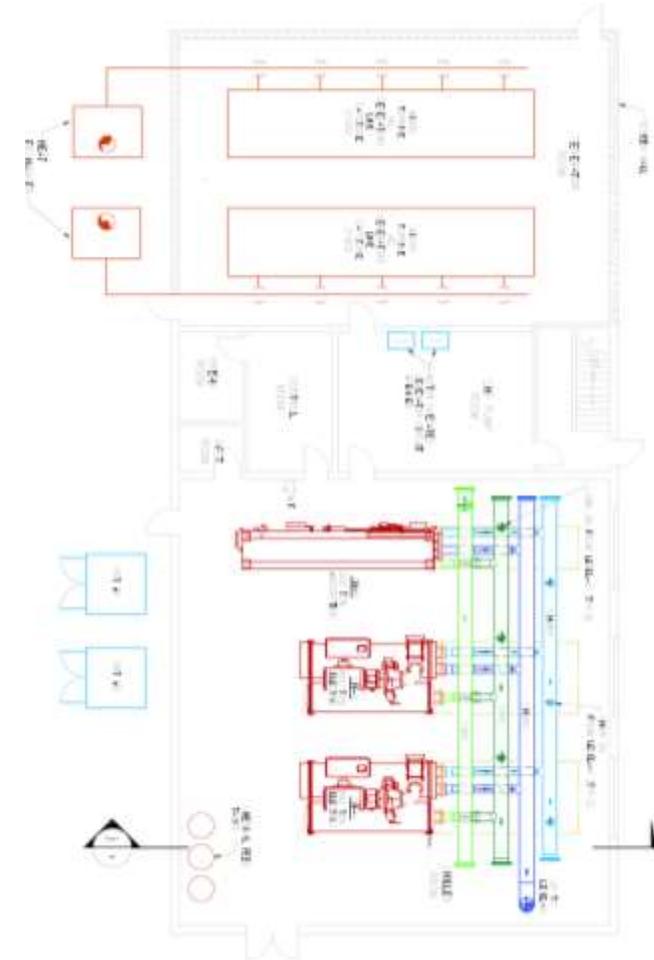
# FUNCTIONAL FLEXIBILITY

## IMPORTANT CONSIDERATIONS – THE FIRST ROADBLOCK

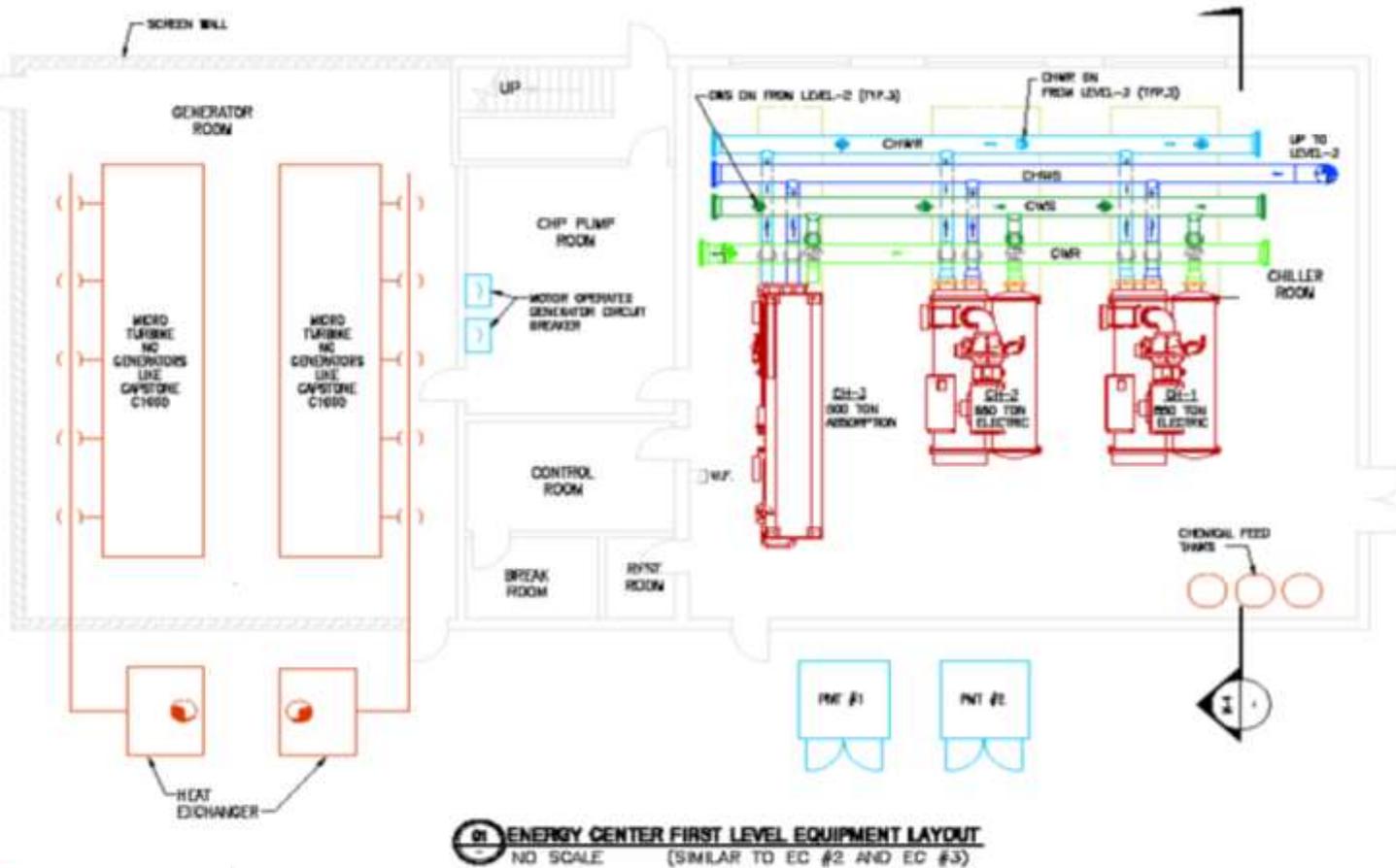
- Availability and quantity of gas is a fundamental consideration
  - Currently, natural gas is not available to support a full 6MW of build out
  - Costs for infrastructure build out will impact overall energy delivery

### Timing AND Cost

- Timing and Construction schedule for gas infrastructure is a fundamental consideration
- To meet the needs of early and future constituents of TWPR the proposed solution needs to have the capability to accommodate IMMEDIATE needs but the flexibility to accommodate the changing needs of TPWR
- Remaining flexible in design approach allows for marriage of gas infrastructure timing with optimization of installation costs
- Additionally, maintaining a flexible approach allows for consideration of alternative generation mechanisms that will optimize opportunities for secondary revenue streams



# CONCEPTUAL DESIGN OF TPWR ENERGY PLANT



ENERGY CENTER  
MICROGRID AT WALTER REED  
DATE: 20 MAY 2018  
M-1

- 3 2MW energy centers
- 1 MW Capstone with flexibility to add bays according to build out
- Heat recovery for HW/CW directed as needed

WGL  
Concept



# NUANCES PJM CONSIDERATIONS

## PARTICIPATION AS ECONOMIC DR RESOURCE IS NOT AUTOMATIC ALSO KNOWN AS THE SECOND HURDLE

CSP should notify PJM if on-site generation will be used to reduce load.

–Option 1:

If generation will be solely used for economic DR and would not have otherwise operated then it can participate as economic DR.

–Options 2:

If generation is NOT solely used for economic DR then it can only participate if PJM can adequately quantify incremental on-site generation and approves.

- Only load reductions from generation that would not have otherwise been operating is permitted.
- CSP may only submit registration if CSP has all appropriate environmental permits. By virtue of submitting a registration, CSP represents that CSP has validated that customer has all appropriate environmental permits.

–Necessary permits must be in place before effective date on registration – if the CSP has not received the necessary permits prior to indicated effective date, then CSP must terminate such registration before effective date.

	DR Source	Example	Permitted participation as Economic DR resource
1	Generation	On-site backup generation – does not run except for emergency to supply power or for normal routine testing. Historic output shows only used during routine test.	Yes. Normal operational generator test do not qualify. Only time test would qualify is if test is NOT scheduled and then unit is used to support RT or DA instructions.
2	Generation	Cogen/CH&P (Central Heat and Power). Unit runs as part of normal production process and output will remain comparable whether or not there is participation in PJM economic DR.	No.
3	Generation	Cogen/CH&P or unit that operates historically to reduce electricity cost but will operate for more hours or higher MW per hour because of PJM economic DR revenue.	Maybe – can only participate if PJM can quantify the incremental load reductions.
4	Generation	Cogen/CH&P or unit that operates to shave peak each month.	No unless there is incremental MW or Mwh that will occur.

# MAINTAINING OPTIONS

## DEVELOPMENT AMBIGUITY CREATES CHALLENGE AND OPPORTUNITY

The intricacies of the PJM DR and Synchronization markets coupled with the variability of the TPWR development schedule compounded by the design and regulatory challenges of the District, the EPA, PJM and US Building codes created an environment that is virtually impossible to predict optimal design. The ability to remain flexible enough to exceed the expectations of TPWR developers and tenants while maintaining the flexibility accommodate District Infrastructure developments and market opportunities is critical to the successful deployment of the TPWR energy centers

## CONCEPTS IN OPTIMIZATION

To this point the design of TPWR Energy SPE has not accounted for revenues outside of those direct generated from TPWR base customers. The flexible approach undertaken by WGL will allow for consideration of alternate generation assets, integration of stand-by and Back-up generation assets and strategically position excess capacity assets to create the optimal revenue generating mechanism for the TPWR Energy Centers.

## VISUALIZING OPPORTUNITY



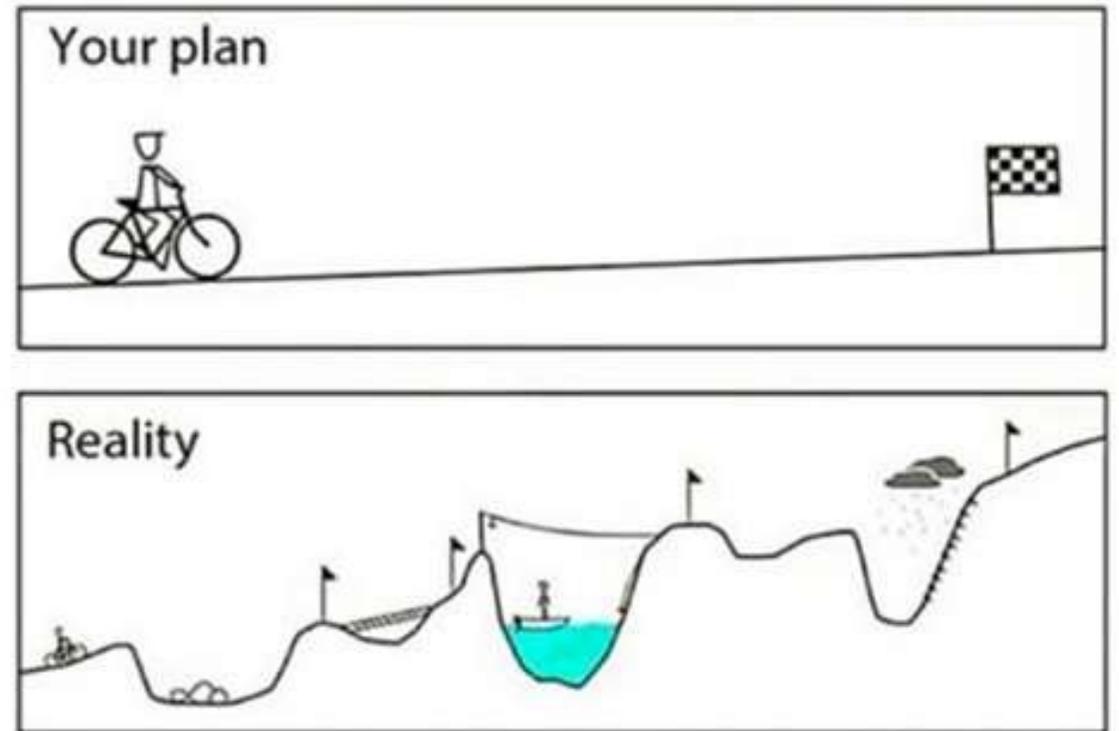
- // VISUALIZATION OF BOTH OPERATIONAL AND MARKET CHARACTERISTICS ENABLES PROFITABLE DECISION MAKING
- // MAXIMIZING EC REVENUES ENABLES OPPORTUNITIES FOR REVENUE SHARING TO BOTH DEVELOPERS AND TENNANTS

# LIFE DOESN'T ALWAYS GO AS PLANNED

## REALITIES OF THE PARKS AT WALTER REED INSTALLATION

The technical approach of TPWR installation was actually the easiest part of the overall solution. Technically, most obstacles can be overcome with time and money.

The obstacles that are more difficult to overcome are politics, commercial terms, financial impact of a new way of thinking, personality and regulatory issues.



# **BUSINESS & FINANCIAL MODEL**

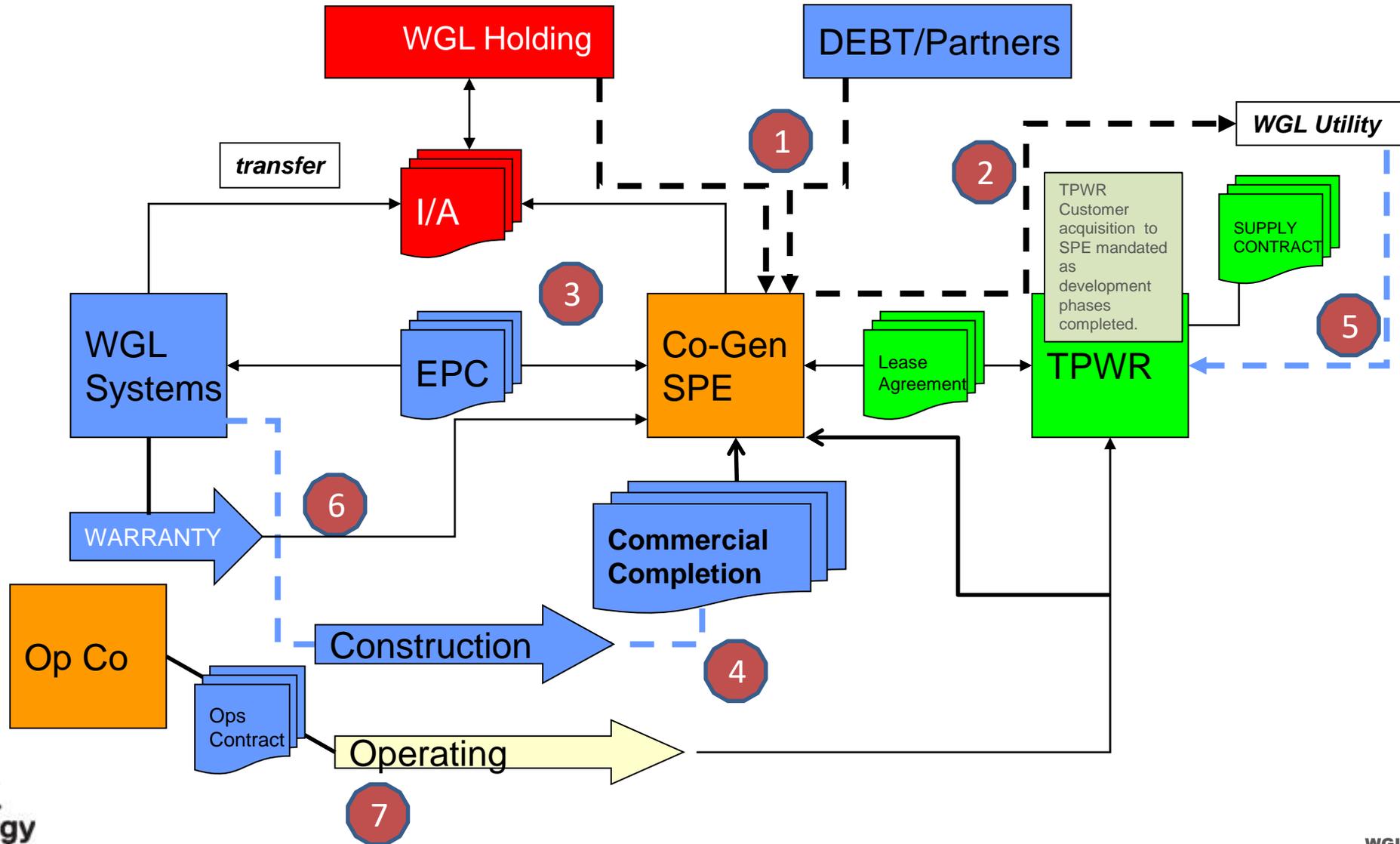


# COMMERCIAL STRUCTURE COMPLEXITY

- Multi tenant development typically incorporates multiple developers. In this situation a master vertical developer and subordinate developers each with their own build out schedule
- The inability of the master developer to commit to anything other than a proposed rate structure and in particular an inability to commit to a buildout schedule that incorporated consequence to the energy developer created an exceptionally complex and contentious negotiation
- Another breakdown in communication occurred in discussions regarding a developer contribution to the energy center development cost. The initial RFP indicated a significant expected reduction in cost from transitioning from the traditional HVAC infrastructure to a 4 pipe approach. Without the defined build out commitment, system sizing would become virtually impossible. In lieu of a committed load , the developer needed to backstop energy center revenues. This created a significant roadblock in negotiations

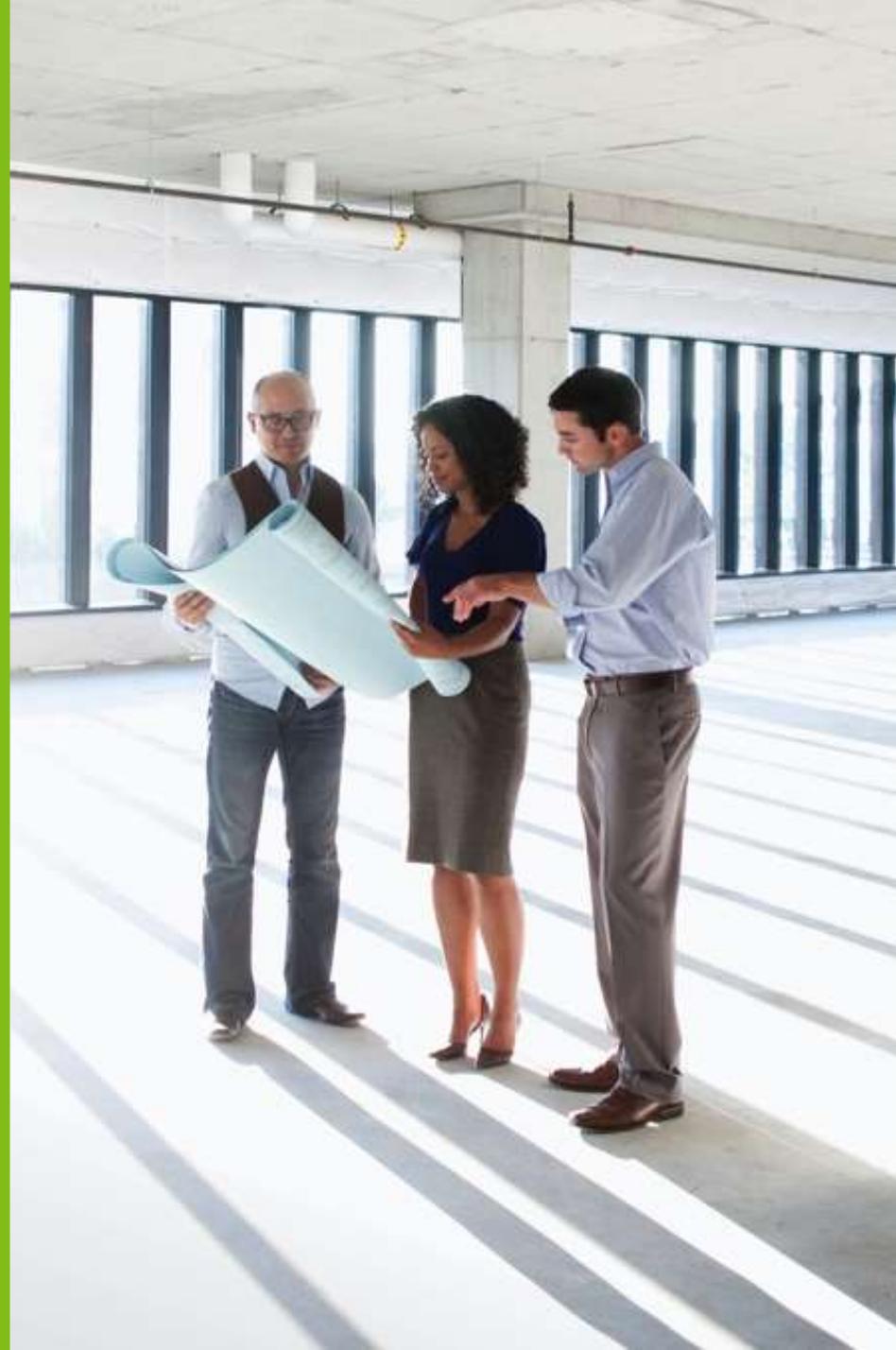


# Deal Structure – it's a lot of paper



- 1) WGL Funds SPE with Debt/Equity and/or partner in kind contribution
- 2) SPE Contributes Cash CIAC for pipeline construction and signs fee agreements plus LDC
- 3) SPE Signs Implementation Agreement with WGL Systems in concert with covenant agreement with Developer
- 4) WGL develops project to commercial completion under payment terms set in IA. Interest during construction imbedded
- 5) WGL Services vies for commodity contract at commercial completion. Favored nation status.
- 6) WGL honors performance and operational requirements for warranty period
- 7) Ops Contract is Joint between WGL and Co-Gen SPE based on covenant Ops requirements

# REGULATORY FRAMEWORK



# CC&R AND GOVERNMENT INTERVENTION

**“ WGL WORKING WITH THE MASTER DEVELOPERS WILL DEVELOP THE NECESSARY CC&R TO DELIVER COST EFFECTIVE EASY CLEAN ENERGY TO TPWR OWNERS AND OCCUPANTS.”**

- WGL created a regulatory and legal framework for the delivery of cost effective clean energy to the TPWR
- WGL will manage the energy use of TPWR owners and occupants
  - WGL proposes that the terms of the Covenants Codes and Restrictions will incorporate the obligation of owners and occupants of TPWR to pay for energy services solely provided by the WGL TPWR energy entity.
  - The District of Columbia City Council will review and approve the Land Disposition Agreement which will include the CC&R
  - The City Council approved CC&R will govern the WGL TPWR energy entity’s terms of service rather than traditional regulation
  - The CC&R will incorporate the pricing approach for customers bills assuring that those bills will be no higher than the tariffs governing similar service external to the TPWR



## CCR Posed several problems in Commercial Development

- Added a voice to the process that was powerful but not engaged
- Commitments from master developer were imposed on energy developer – Rate no higher than available commercial rates WHICH WERE NOT DEFINED
- Rate structure was not tied to cost in a meaningful way – Again, Master and Sub developers were not accountable for the restriction they allowed

# STAKEHOLDER ENGAGEMENT



# BELIEVING THE DREAM

## ALIGNING THE EXPECTATIONS OF “ALL” STAKEHOLDERS IS CRITICAL TO SUCCESS

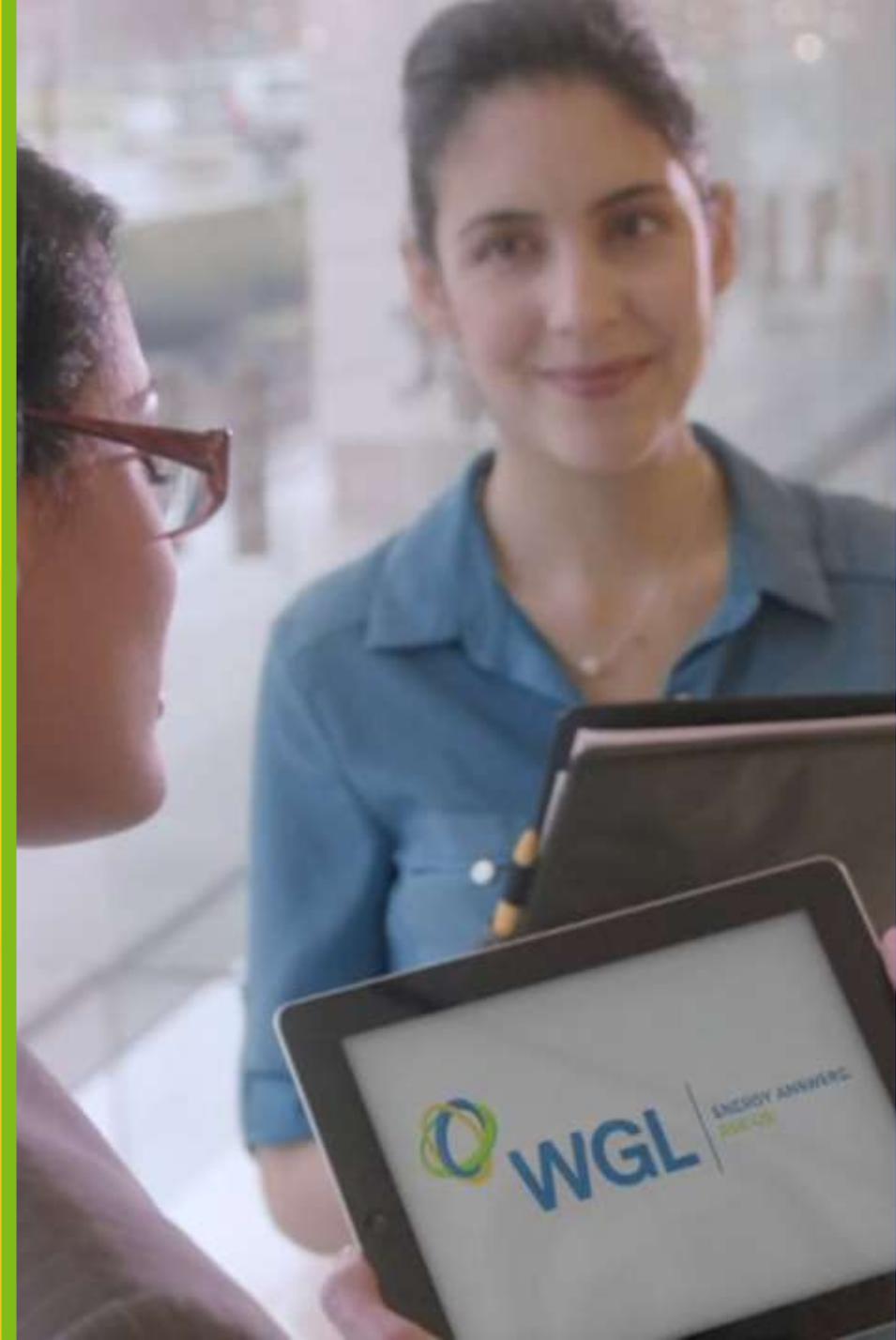
- Developers demonstrated Questionable commitment to “a new approach” even though the new approach was what was used to win the bid to gain the property
- Master developers represented a timeline to certain existing tenants that was not initially part of proposed development plan

## REMEMBER YOU ARE A STAKEHOLDER TOO

- If you stand for nothing you’ll fall for anything
- Understanding the goals of stakeholders is critical to project success
- Understanding the ACTUAL power and influence of stakeholders is critical to your sanity. Know where the decisions are made and who influences these decisions.



# CUSTOMER SERVICE



# HIGH TOUCH CUSTOMER CARE

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## **“EXISTING OPERATIONS SUPPORTING OVER 1.5 MILLION CUSTOMERS”**

Don't underestimate the complexity and cost of billing thousands of customers. Understand the true cost of outsourced billing and collections.

Fortunately for WGL, the infrastructure for billing already existed but incorporating multiple commodity components into the billing architecture was still an additional level of complexity.

## **HOW WILL YOU HANDLE CUSTOMER CARE**

Ensure you account for the costs of servicing thousands of customers with multiple service level agreements. Each customer has a different expectation of service and options need to be created to accommodate multiple expectations.

Finally resiliency is a service but it is rarely valued until the lights go off



## WE ARE

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