

# A New Funding Solution for Energy Infrastructure Replacement



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# Today's Discussion Panel

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<b>Moderator</b>	<b>Michael Nail</b> <b>President and CEO and Co-Founder</b> <b>Enlightened Enterprises, Inc.</b> <b><u><a href="mailto:enlightened1on1@gmail.com">enlightened1on1@gmail.com</a></u></b> <b>301-639-3767</b>
Panel Member	<b>Dick Santangelo, P.E., <i>President, CEO, Founder</i></b> <b>Apollo Engineering Solutions, LLC</b> <b><u><a href="mailto:rsantangelo@apolloengsol.com">rsantangelo@apolloengsol.com</a></u></b> <b>703-627-7161</b>
Panel Member	<b>Patrick Landers, Sustainability Partners</b> <b>Investment Development Officer</b> <b><u><a href="mailto:planders@s.partners">planders@s.partners</a></u></b> <b>413-544-8881</b>

# Learning Objectives



1. Review an alternate approach to debt-financing or CapX to address infrastructure replacements.
2. Define the “**as a Service**” approach compared to traditional infrastructure replacement programs.

# Agenda

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- State of Play in *Public Housing Authorities*
- What Are the Capital Infrastructure Issues Facing PHAs?
- What Are the New Solutions?
- How Would “**as a Service**” Work for your PHA?
- How Do We Pay for “**as a Service**”?
- Mitigating Risk; Why Is “**as a Service**” a Viable Option for the MUSH Market?
- Summarize “**as a Service**”; Q&A

# Public Housing Infrastructure Replacement –State of Play

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- PHAs, first and foremost, are real estate development company
  - Core mission is to develop and maintain decent, safe housing
  - Collect rent; pay bills
  - Comply with HUD regulations
- Facilities management and maintenance expend 35+ percent of PHAs resources, annually; an additional 21 percent are expended for utilities
- \$26B in PHA backlog; \$25B alone for NYCHA (2018)
- Infrastructure replacement including elevators, windows, roofs, boilers, enhanced resiliency, etc. would require Capital funds or new debt

# Traditional Funding Sources

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- Lease-purchase agreements
- Lines of credit
- Energy financed funds (Bonds)
- Power Purchase Agreements (PPA)
- Capital/Reserve Funds
- Affordable Housing Market
  - Rental Assistance Demonstration (RAD) Program
  - Tax credits
  - Capital Fund Financing (CFFP)
  - Operating Fund Financing (OFFP)

# Historical Perspective

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- Energy Performance Contract (EPC) – 135 + projects; \$1.4B investment
- Budget neutral solution
- Replace obsolete energy/water systems
  - Reduce costly system repairs and maintenance costs
- Consolidate parts inventories, e.g., uniformity in single procurement purchase for toilets
- Improve health and comfort
- Leverage energy and water savings; leaving capital funds for more emergent needs
- Reduce Greenhouse effect by lowering the consumption of coal, gas and oil
- Create local green jobs

# Barriers to Traditional Funding Sources

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- Some banks unwilling to commit capital w/o collateral
- Energy Efficiency is not generally valued in real estate evaluation and appraisal
- Process is too complicated – 12 to 18 month to get installation
- Lack of education on the part of lenders
- Energy conservation is not core mission
- Investors perceive a lack of investment opportunities at scale with attractive returns, strong risk management and sufficient volume



# What is “as a Service” Approach?

- New marketplace emerging to address infrastructure needs in Municipalities, Universities, School, Hospitals (MUSH) and Public Housing Authorities
- Investors looking for opportunities to invest in sustainability, resiliency
  - Like Brookfield, Ares, Hastings, Allianz, Alliance Bernstein, Goldman Sachs, etc.
- Investors through Service Providers (SP) assume ownership responsibilities and risks for essential critical services
  - Modernizing infrastructure while taking on responsibility of keeping it reliable, safe and efficient
- “as a Service” value proposition, an alternative to traditional financing reducing the cycle of RFQ/RFP, Budgeting, Financing, Bond, Taxes, Rental, PPA’s, Leases and Shared Savings arrangements
- With “as a Service” approach, your PHA commits to no long term contract, and no debt
- Your PHA simply pays for use



# What is “As A Service” Solution

## Utility Model Approach



What matters most to a utility client?

When I need service, flip of a switch away!

I pay only, for what I use!

My utility service is reliable!

My fees are reasonable, affordable!

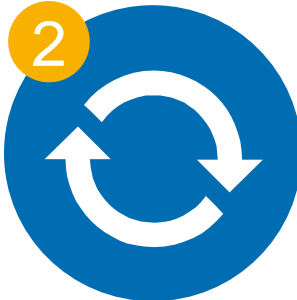
# How “as a Service” Work?



Adds focus and proprietary capital for upgrading essential services



You don't purchase any product or installation



Service Provider pays for everything: materials, installation, maintenance & upgrades



You only pay a small fee for usage

# “as a Service” Can Deliver...

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LED lighting &  
Smart City technology solutions



Refueling stations (CNG/LPG)



Boilers, chillers and refrigeration



Smart plumbing controls; Low flow  
water-efficiency solutions



HVAC retrofits; building envelope  
energy efficiency



Smart/precision irrigation systems



High-efficiency motors/starters



Roofs; Building envelope upgrades



Smart motor controls (VFD)



Waste systems



Microgrids



Elevators

# How “as a Service” Works?

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# How Does Client Pay For “as a Service”?

**Financially Self-Sufficient Service Provider has our own capital (just like any other utility company).**

**Monitor and verify our upgrades Service Provider meters all of the upgrades by installing their own usage meters on each major device.**

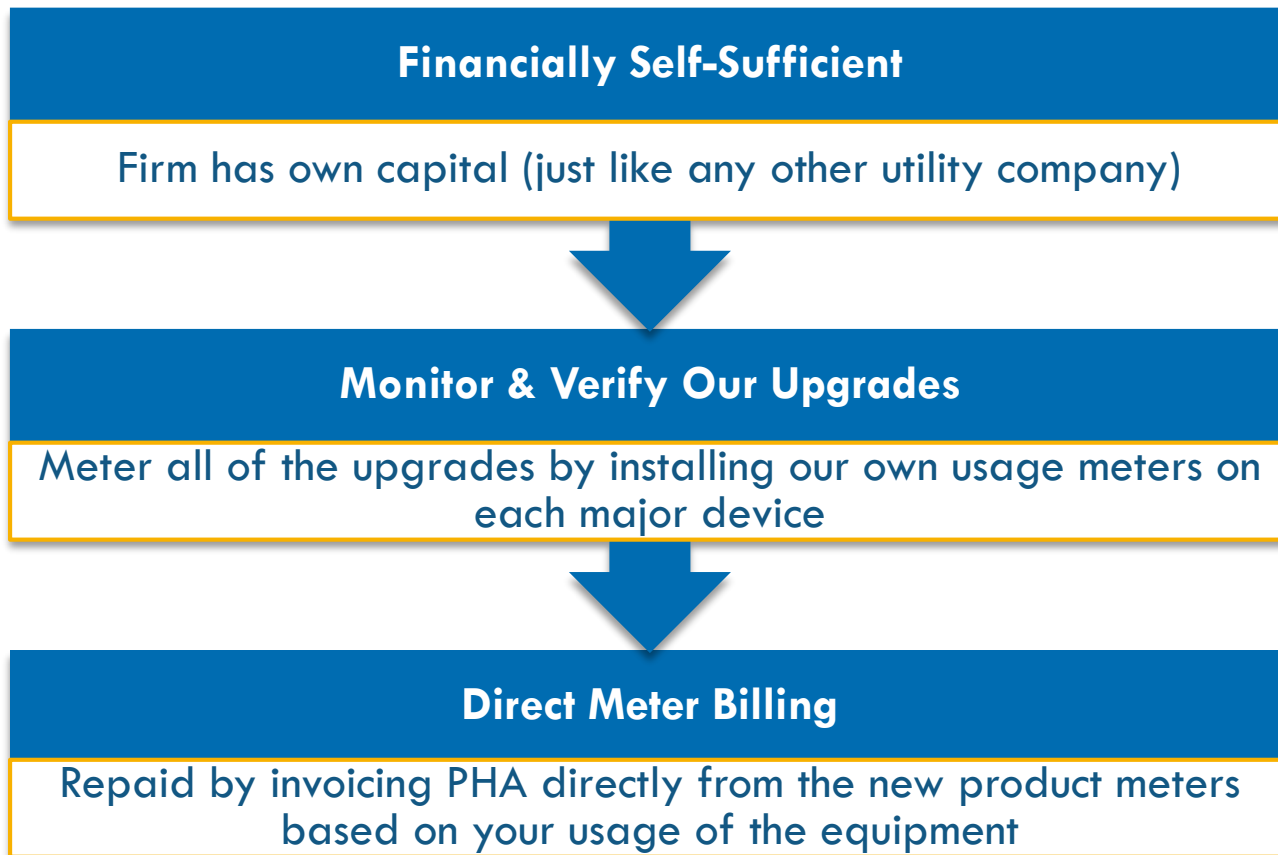
**Direct meter billing Service Provider is repaid by invoicing you directly from the new product meters.**

	Cost/KwH	KwH Usage	Billing	Total	
Old Lighting	\$0.09	71,964	\$6,476.76	\$6,476.76	
New Lighting Utility	\$0.09	30,000	\$2,700.00		58% Energy Savings
Service Usage Fee	\$0.03	30,000	\$900.00	\$3,600.00	
			Total Savings	\$2,876.76	44% Utility Cost Savings

**You keep the benefits from reductions in utility bills, maintenance costs, disruption to operations and improved systems!**

# How Does SP Get Paid for “as a Service”?

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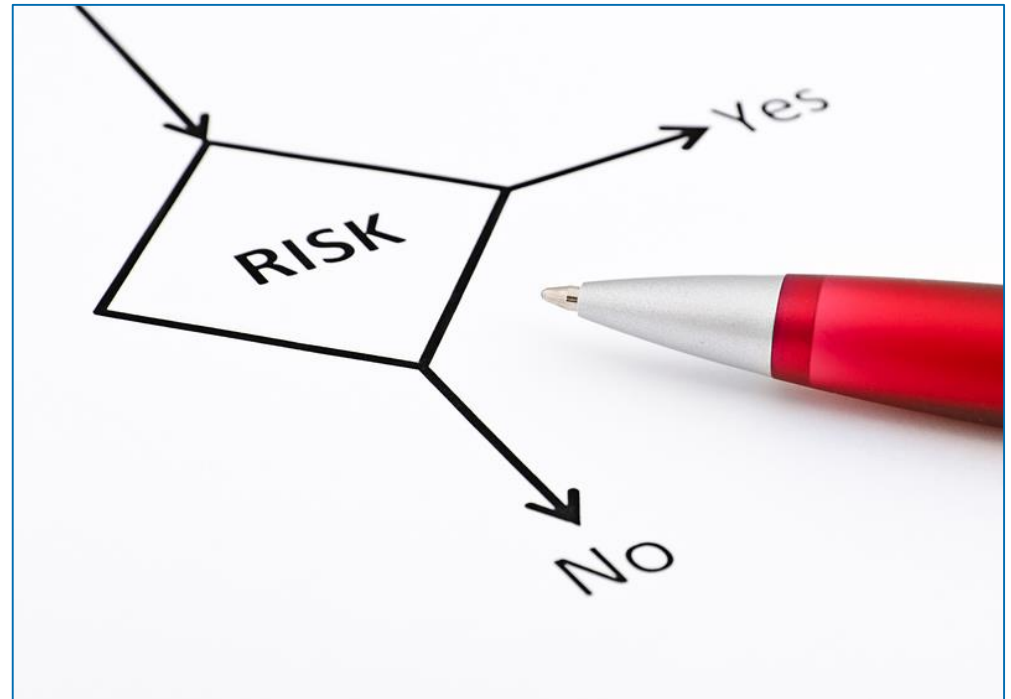


**You keep the benefits from reductions in utility bills, maintenance costs, disruption to operations and improved systems!**

# Mitigating Risk to PHA

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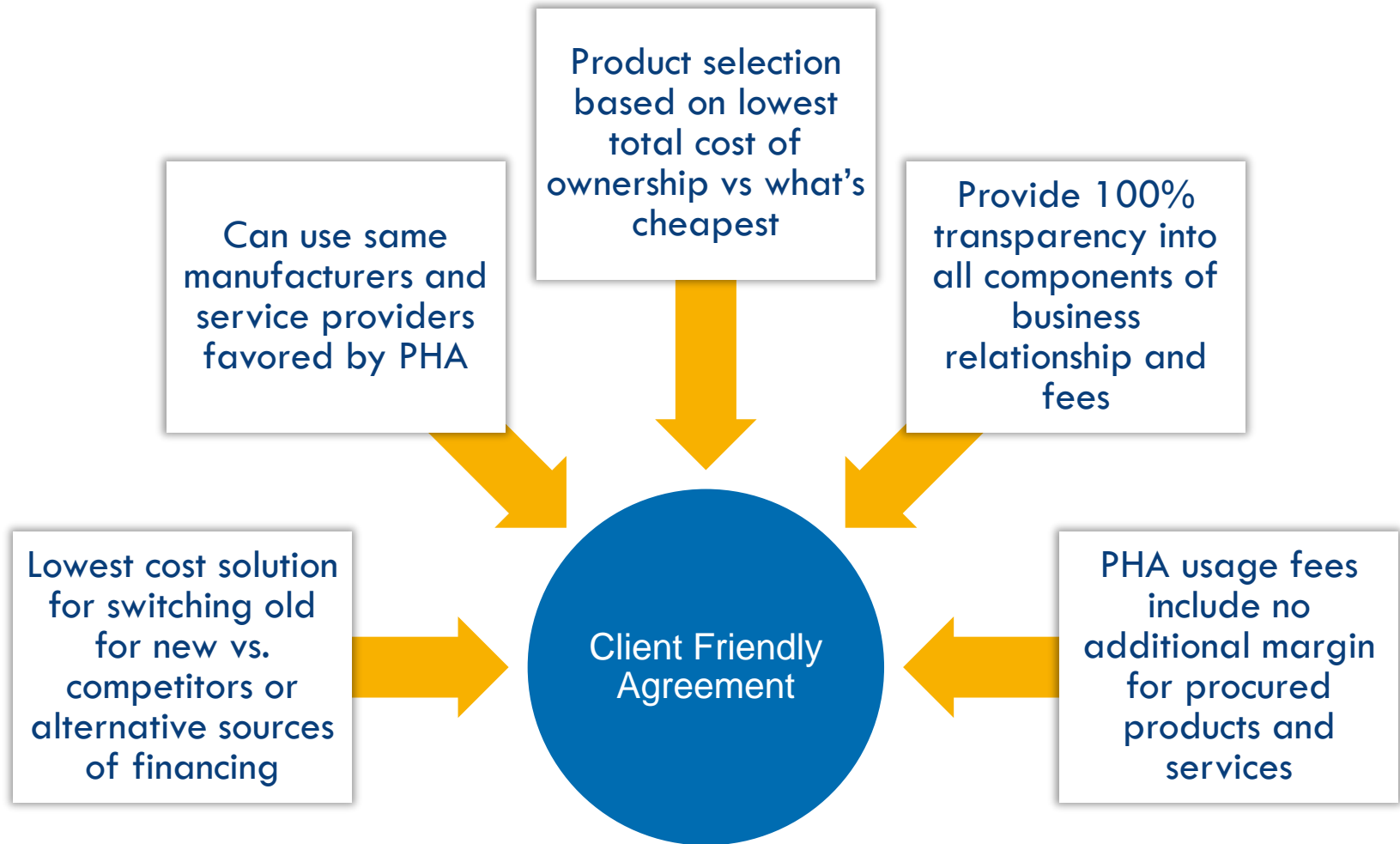
- PHA Can Exit Agreement at Any Time with Zero Penalties or Surprises
- Risk to PHA mitigated if Service Provider, Investor or Manufacturer Fails





# PHA-Centric Agreement

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# Why Is “as a Service” a Viable Option?

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1. Investors with Service Providers (SP) bring capital to table; taking risk
2. PHA pays usage fee (e.g. utility company)
3. SP and PHA looking for high performance, high value equipment that is reliable and maintenance free, including safety for its residents
4. Existing equipment (HVAC, elevators, etc.) may be eligible for purchase by investors, offsetting some of debt payoff
5. Simplifies procurement through Cooperative Purchasing Agreement or RFQ for investment
6. Equipment is installed in 6-9 months
7. SP mitigates PHA’s risk by owning/maintaining equipment
8. SP requires no minimums or multi-year contracts
9. All efficiency utility savings goes to the PHA

# Program Comparisons

**NOT** a loan, lease, financing agreement, bond, ESCO, installment purchase, rental, or ordinary sharing-agreement; **Service Provider pays 100% of materials, installation, maintenance and upgrades.** You are protected from economic risk and can lower your infrastructure costs at the same time.

	Term Length	Minimum Monthly Charge	Agreement Complexity	Is it CAPEX	Maintenance Included	Upgrades included	Fees to Cancel	Required Guarantees
“As A Service”	Monthly	NO	7 page	NO	YES	YES	NO	NO
Loan	5-20 years	YES	15 page	YES	NO	NO	YES	YES
Lease	5-10 Years	YES	20 page	YES	NO	NO	YES	YES
Financing agreement	3-10 Years	YES	25 page	YES	NO	NO	YES	YES
ESCO	7-30 Years	YES	120 page	YES	NO	NO	YES	YES
Ordinary sharing-agreement	10+ years	YES	7 page	YES	NO	NO	YES	YES

A lot of companies offer to help you implement energy savings solutions, but how many also offer to pay for them?

# Maximizing MTW Opportunities, Securing PHAs' Future

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- MTW-PHAs and PHAs contemplating MTW could propose use of “as a Service” approach as part of its MTW demonstration program demonstration
- MTW language provides expanded flexibility
  - MTW agencies have the flexibility to apply fungibility across their HCV, Operating Funds, and Capital Funds
  - MTW agencies are also able to flexibly administer their public housing and HCV programs. MTW designated agencies are granted exemptions from existing public housing and voucher rules. Because of the exemptions provided, designated MTW agencies can create policies that address local needs.

# Implementation of “as a Service” Process

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- **Current regulations and statute offer a pathway for implementation of “as a Service”**
  - 24 CFR § 990.170 Operating Fund regulations
    - Shared Savings - 75% PHA/25% HUD;
  - Sec. 9 of '37 Housing Act
    - “procedures and systems to maintain and ensure the efficient management and operation of public housing units”
  - All PHAs eligible to employ “as a Service”
- **HUD guidance permits 3 options:**
  - Traditional RFP/RFQ; must re-compete after 5 years
  - Use of PILOT, city provided services
  - Cooperative Agreement between City and SP; PHA can buy services off the Cooperative Agreement



# Knowledge Check

- “as a Service” does not require debt service financing. **True or False**
- “as a Service” offers significant client savings with the least risk versus traditional debt service financing approaches. **True or False**
- Under “as a Service” approach, the client only pays for the utility it uses. **True or False**
- Under an “as a Service” approach, the equipment maintenance and upgrades are included. **True or False**



# Business Case for “as a Service” Approach

Elevator Case Study

# Terms and Definitions

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- Value Engineering - value engineering can be defined as an organized effort directed at analyzing designed building features, systems, equipment, and material selections for the purpose of achieving essential functions at the lowest life cycle cost consistent with required performance, quality, reliability, and safety. Focus is on function at the lowest cost.
- Robust Engineering - is engineering design that allows for the voice of the customer to be translated into engineering requirements that optimize the functionality of the product or process and make it robust to common failure events/modes. Robust Engineering is characterized by optimum system performance, and low failure rates, resulting in longer life cycle and lower operating costs.



# PHA Needs/Assumptions

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- PHA requested Robust Engineering Solution for Elevator Replacement
  - Regen series of elevators - Elevator line regeneration is a technology that allows energy from a traction elevator system to be returned to the building in overhauling situations. A Regen elevator reduces the overall energy consumption of the elevator and can contribute toward a building's LEED certification.
- Service Provider's (SP) Robust Engineering solution costs 50% more than Value Engineered design
- SP receives 30% discount equipment and materials for buying through a national account direct from manufacturer
- SP receives an additional cash discount of 10% on equipment and materials and 10% on installation
- Robust Engineering results in useful life of 30 years
- Because of the Robust Engineering approach, service costs are reduced by 30% compared to a Value Engineered solution
- Repair costs begin at 25% of useful life at 2% material costs and escalate 1% annually

# Financing Solution

“Time is Money”

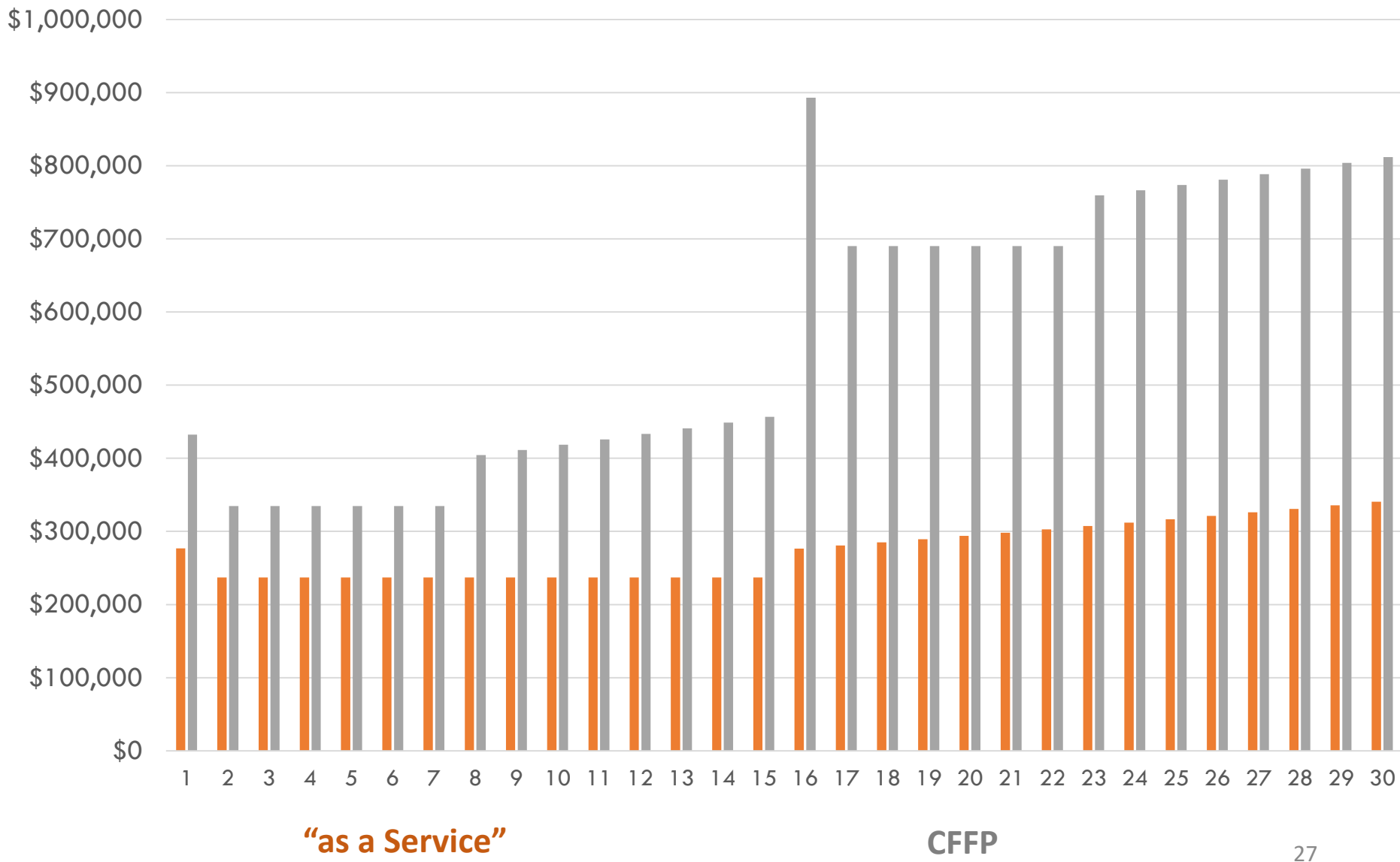
- CFFP rate 5%
- CFFP Transaction Cost 3%
- Annual construction Product Price Index 5%
- 12-18 months to operational status; HUD approval, procurement, purchase, install
- Cost of Capital 6%
- MGT Fee .8% annually
- Internal cost of closing \$40K
- Days to NTP to Delivery - 45
- Days to Install - 60  
Days to First Customer usage and payment - 60

## Project Financing

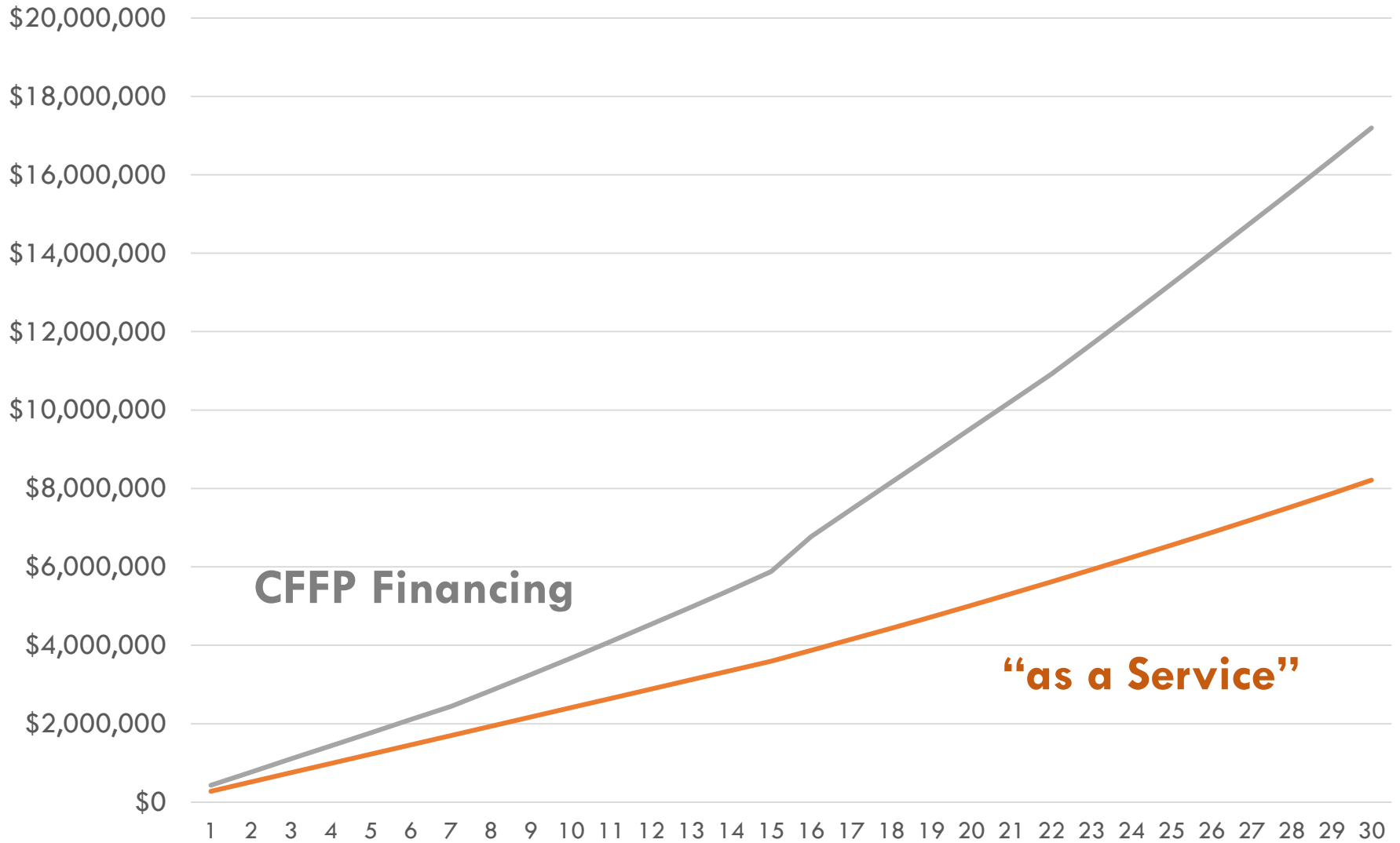
CFFP		"as a Service"	
<b>CFFP Rate</b>	5%	<b>SP Customer Rate</b>	6.80% → 6% + 80bp Fee
<b>Transaction Cost</b>	\$97,649	<b>Transaction Cost</b>	\$40,000
<b>Total Cost of Capital</b>	6.17%	<b>Total Cost of Capital</b>	6.93%
<b>Capital Expense</b>	\$3,254,954	<b>Capital Expense</b>	\$2,951,366
<b>Annual Payment</b>	\$329,269	<b>Annual Payment</b>	\$233,080

# “as a Service” Saves \$8,984,155 a 30 Year Period

(NPV of \$3,726,835 Discounted @ 5%)



# Cumulative Cash Out Comparison Robust Engineering (“as A Service”) versus Value Engineering with CFFP Financing



# “as a Service” Saves \$8,984,155 a 30 Year Period

(NPV of \$3,726,835 Discounted @ 5%)

	Year	1	2		29	30
	SaaS Payment	\$233,080	\$233,080	➔	\$233,080	\$233,080
	SaaS O&M	\$3,864	\$3,864	➔	\$102,638	\$107,528
	SaaS Deal Cost	\$40,000	\$0		\$0	\$0
	CFFP Payment	\$329,269	\$329,269	➔	\$684,527	\$684,527
	O&M	\$5,520	\$5,520	➔	\$119,362	\$127,269
	CFFP Deal Cost	\$97,649	\$0		\$0	\$0
	<u>Year</u>	<u>1</u>	<u>2</u>		<u>29</u>	<u>30</u>
Annual	SaaS	\$276,944	\$236,944	➔	\$335,717	\$340,608
	CFFP	\$432,438	\$334,789		\$803,889	\$811,796
	<u>Year</u>	<u>1</u>	<u>2</u>		<u>29</u>	<u>30</u>
Cumulative	SaaS	\$276,944	\$513,887	➔	\$7,870,561	\$8,211,168
	CFFP	\$432,438	\$767,227		\$16,383,527	\$17,195,324
	Delta	\$155,494	\$97,846	➔	\$468,172	\$471,189
Discount--> 5%	NPV	\$3,726,835				
		Total Annual Cost				
	SaaS	\$8,211,168				
	CFFP	\$17,195,324				
	<b>Total Delta</b>	<b>-\$8,984,155</b>				

# Added-Value Proposition

<b>Audit Cost</b>	No audit costs with "as a Service" Approach
<b>Buyout if PHA decides to discontinue services</b>	Baseline fixed for determining savings. Client can purchase equipment at depreciated value. No markups or penalties.
<b>Cancellation Penalties</b>	Any time for depreciated costs with no markups or penalties.
<b>Contract</b>	Simple 8-page month-to-month service agreement
<b>Decision Making</b>	Project sized to meet PHA's needs. Tackle 1 upgrade at a time. No Capex needed. Short-term agreements.
<b>Incentives</b>	PHA keeps all energy savings with Service Provider. <b>As an MTW Agency, all energy savings retained by PHA.</b>
<b>Liabilities</b>	As a Service Agreement there is no debt, no financial obligations or commitments. Completely off-book.
<b>Maintenance</b>	Maintenance included in Service Provider's usage fee.
<b>Monitoring</b>	Discreet monitoring of circuits eliminating non-upgraded products. Real-time monitoring.
<b>Project Viability</b>	Project not dependent on savings. Funds available to expand project to meet PHA needs.

# Compelling Argument to Consider “as a Service”

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1. Investors bring funds to the table to pay for elevator, installation, maintenance and replacement
2. Availability of PHA’s bond capacity remains untouched
3. Capital funds remain available to the PHA for emergent needs
4. 6-9 months to purchase, install, operate the elevator
5. Robust, reliable equipment compared to value engineered equipment:
  1. Greater equipment reliability and safety for residents
  2. Lower usage fees from longer amortization schedule
  3. Longer useful life before complete replacement is required
  4. Lower day-to-day overall maintenance costs
6. Lower “as A Service” costs than the Total Cost of Ownership (Histogram)
7. “as A Service” analysis estimates an NPV of approximately \$8.8M compared to traditional CFFP financing

# Preserving Debt Capacity While Addressing Capital Improvement Plan

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## Debt Service Coverage Ratio (DSCR)

A ratio that measures the organization's ability to meet its debt repayments. A declining ratio number can indicate that an organization is in danger of becoming insolvent.



Net Revenue  
Available for Debt  
Service



Principal Payment  
+ Interest Expenses

Minimizing Total Cost of Ownership increases net revenue. Avoiding debt decreases future principal and interest payments.

- Indicates available cash flow to pay current **debt** obligations
- Often additional bonds tests limit of PHA's ability to issue debt
  - Service contracts are not debt
- When investments in efficient infrastructure reduce operating costs, Net Revenue increases
- If numerator (Net Revenue) increases and the denominator (P+I) does not change the Debt Service Coverage Ratio improves
- Getting more infrastructure built while not consuming debt capacity is a major benefit of utilizing a service contract



# Who is Considering “as a Service” Solutions?

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- “as a Service” Potential Applications
  - Public Housing Authorities (9 PHAs expressed interest)
  - Airports, Highways, Streets, Parking
  - Cities, States, Parks, Recreation, Police, Fire Stations
  - Rail Systems
  - Shipping Ports
  - Hospitals
  - Schools and Universities
  - Water and Power Utilities

# Ask Yourself - Client Self-Assessment

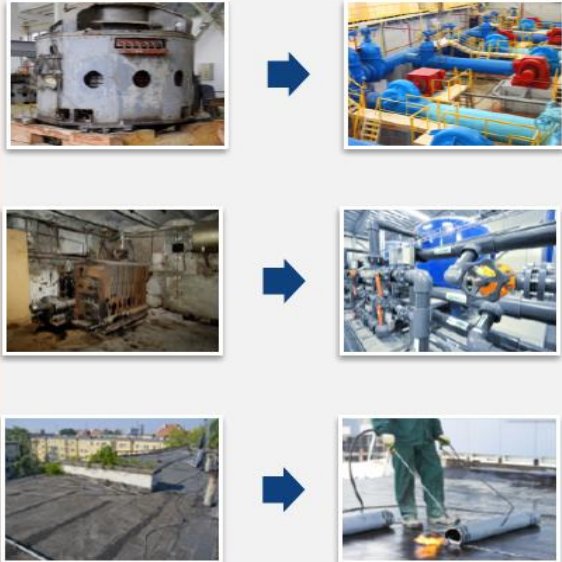
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- What are my options for addressing capital infrastructure needs?
- What is the Total Cost of Ownership (TCO) of existing equipment?  
What is the TCO of replacement equipment including Installation, maintenance, upgrades, insurance, finance charges, staff benefits, capacity; skills capability
- Is it less expensive to use “as a Service” vs own; least-purchase; bond financing, etc.?
- How important is equipment reliability to my portfolio?
- How long can I afford to wait for replacing critical components?
- At what point does TCO exceed total usage fee of “as a Service” ?
- Am I willing to give up ownership and traditional debt-based financing for greater reliability, performance, and reduced maintenance costs?

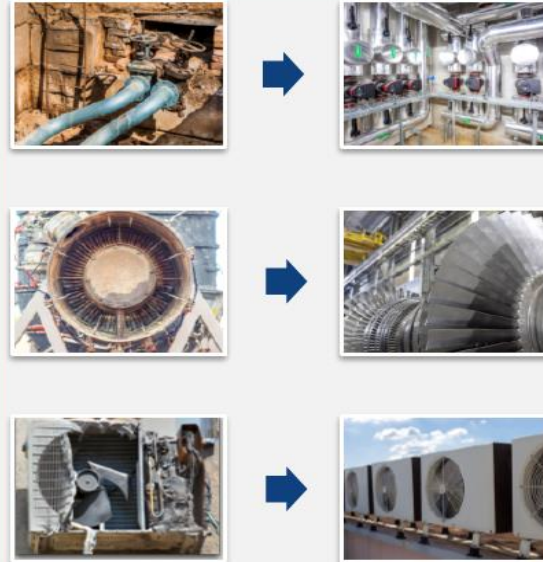
# Thank You

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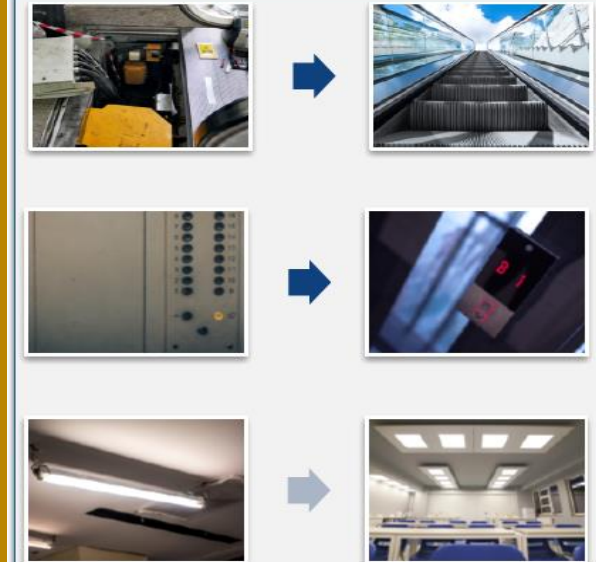
Water Pumps, Boilers  
Roofing Systems



Heating Systems  
Turbines, Motors/Compressors  
Air Conditioning Systems



Escalators, Elevators  
Lighting & More



## Michael Nail

President and CEO and Co-Founder  
Enlightened Enterprises, Inc.  
Business Phone: 301-639-3767  
[enlightened1on1@gmail.com](mailto:enlightened1on1@gmail.com)

## Dick Santangelo, P.E.

Apollo Engineering Solutions, LLC  
"We Engineer Energy Business Solutions"  
Business Phone: 703-627-7161  
[rsantangelo@apolloengsol.com](mailto:rsantangelo@apolloengsol.com)

## Patrick Landers

Sustainability Partners  
Investment Development Officer  
413-544-8881  
[planders@s.partners](mailto:planders@s.partners)



*"Options  
Create  
Opportunity"*

*Dick Santangelo*