

**Energy Conservation  
Financing Options**

**for**

**Public Housing Authority**

**By**

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# Energy Performance Contracting Financing Vehicle for PHA

Stated simply, **Energy Performance Contract** (EPC) funding is a procurement tool that allows a Public Housing Authority (PHA) to leverage **future** energy savings (unencumbered subsidies) to pay for energy efficiency capital improvements **today**.



# PHA Funding

PHA Have Two Sources of Federal Funding

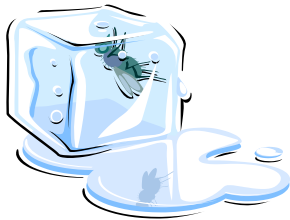
- Capital/Modernization Fund
- Operating Subsidies
  - Calculated Utility Expense Level**
  - 3 Yr Average Consumption**



# Financing Incentive

Four types of incentives to fund energy conservation work.

**1.**



**Frozen Rolling  
Base**

**2.**



**Add-on Subsidy**

**3.**



**Residential Utility  
Allowance**

**4.**



**Utility Rate Reduction**

\* **24 CFR 990.107(f)**

# Financial Incentive Options (FCBL)

## Frozen Base Incentive –



A method for financing energy conservation measures (ECMs) where a housing authority requests subsidy eligibility for its energy financed project using the frozen average three year rolling base consumption level (RCBL) in effect at the time of the project for the entire term of the project.

**Annual Utility Subsidy = Frozen Consumption \* Utility Rate**

**Subsidy Pays for**

**Utility Cost**

**Debt Service**

**EPC Program Costs**



# Financial Incentive Options (AO)

## Add-On Subsidy Incentive –



PHA requests additional subsidy eligibility to cover debt service and allowable project expenses for the term of the project.

Add-On Incentive =

Estimated Consumption Reduction \* Current Utility Rate

**Debt Service**

**EPC Program Costs**



# Financial Incentive Options (UA)

## Utility Allowances –



Housing Authority's eligibility for using the pre-retrofit frozen allowance consumption multiplied by the then current year utility rates to calculate rent rolls using "frozen" allowance levels. The additional rents collected are not subject to be claimed as rental income.

- Rents are based on 30% of resident's adjusted income less the utility allowance; and
- EMCs reduces utility allowances so rents increase ; and
- Rental increase due to ECMs are not claimed as rental revenues to HUD; which means
- Additional rental income is used to pay for ECMs.



# Financial Incentive Options (RR)

## Rate Reduction –



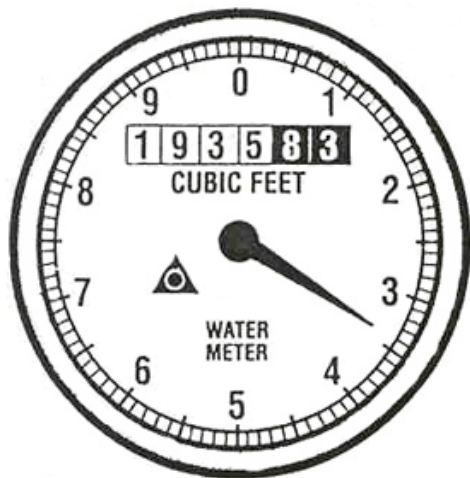
If a PHA takes action beyond normal public participation in rate-making proceedings, such as well-head purchase of natural gas, administrative appeals, or legal action to reduce the rate it pays for utilities, then the PHA will be permitted to retain one-half the annual savings realized from these actions.

- Deregulations of utilities such as well head purchase savings is based on
  - Market Rate vs. Contract Rate
  - 50% - 50% savings split (no term limit)
- Renegotiation of existing garbage contract
  - 50% - 50% savings split (no term limit)
- Irrigation metering and installation of irrigation system
  - 50% - 50% savings retained for the duration of the contract

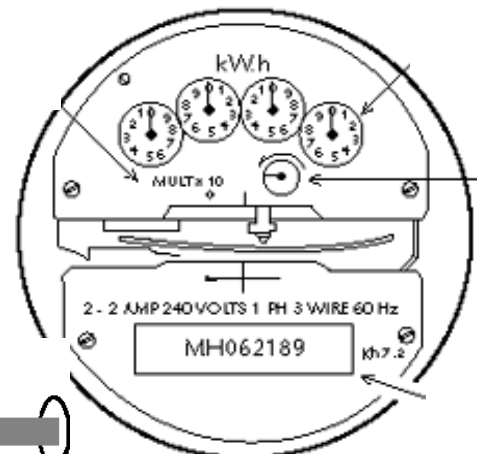




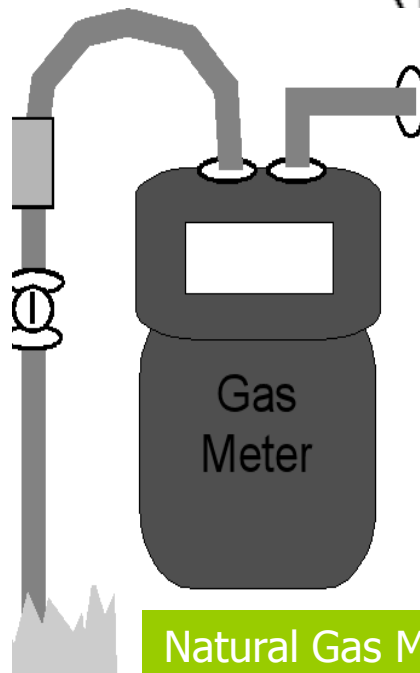
# Identifying and Assigning Incentives



Water Meter



Electric Meter



Natural Gas Meter

**Each meter can be assigned to an incentive.**

**Renewable Energy Solution**

**Power Purchase Agreement**

**qualifies for**

**Rate Reduction Incentive**

**at**

**Public Housing Authority**



# Power Purchase Agreements (PPA)

## Development of PPA Programs because

*⑧ The global demand for renewable energy services is increasing as fossil fuels increase in price and concern grows about the economic and environmental impact. Johnson Controls has an innovative approach, incorporating renewable technologies with energy efficiency strategies that provide our PPA customers with long-term, sustainable solutions.“*



# Why Power Purchase Agreements

- Promoted by HUD and others
- Long term cost certainty
- Federal & State Tax Incentives/Grants
- Revenue opportunity for PHA via HUD Rate Incentive Program
- Revenue opportunity for PHA via sale of Environmental Credits (RECs)
- Reduce Carbon Foot Print



# Long Term Cost Certainty

- No up front capital requirements
- PHA only pays for the power utilized
- Price is fixed for term of the contract
- Hedge against price escalations
- Zero O&M expense



# HUD Guidance – Utilization of Renewable Energy

## PIH Notice 2008-22

. . . In addition to traditional ECMs, HUD strongly encourages PHAs to consider using solar, wind and other renewable energy sources, and other green construction and rehab techniques when they are procuring design services for an energy project . . .

## PIH Notice 2008-25

. . . Power Purchase Agreements (PPAs), whereby the supplier of the renewable energy system pays most or all of the system's installation and maintenance costs and the manager or owner (the PHA) of the property on which the energy-generating equipment is located pays reduced rates for electricity, are available in many areas. PPAs can be negotiated to lead to lease/purchase agreements, where the PHA would take over ownership—and the associated full benefits and maintenance duties—of the renewable energy system. If a PHA takes ownership of the renewable energy system, the PHA would become an energy supplier for the renewable energy system installed and become subject to inspections and licensing requirements . . .



## **Renewable Energy Solution**

**Combined Power & Heat**

qualifies for

**Consumption Reduction  
(Frozen or Add-on)**

at

**Public Housing Authority**



# Combined Heat & Power (CHP)

If your plans call for combine heat and power, should consider the following:

National Energy Technology Laboratory (NETL), part of DOE's national laboratory system got **\$156 million** under ARRA for assistance to "shovel ready" CHP installations. *Both public and privately-owned housing qualify, according to the Clean Heat and Power Association.*

NETL anticipates putting out a NOFA later in March.

JCI does not want Housing Authorities to miss out on funding particularly if they were already considering CHP.





# Combined Heat & Power (Co-generation)

Subject Matter Experts

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NOFA -

[http://e-](http://e-center.doe.gov/doebiz.nsf/UNID/508E7557228E22488625756A00707D1F/$file/NETL+NOI+DE-FOA-000044+(final).doc)

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# Track your Environmental Impact

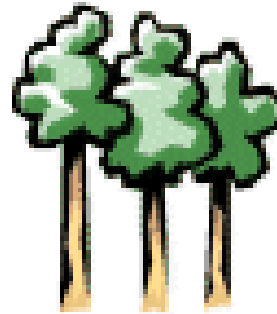
## Year One Annual Energy Savings:

*(Based on all measures investigated in the Detailed Energy Audit)*

Annual Kilowatt Hours Saved	392,949 kWh
Annual Natural Gas Saved	89,629 therms

### Emission Reductions

	In One Year	In 10 Years	In 20 Years
Pounds of Carbon Dioxide	1,876,137	18,761,371	37,522,741
Pounds of Sulfur Dioxide	6,137	61,369	122,739
Pounds of Nitrogen Oxide	2,562	25,622	51,244
Metric Tons of Carbon Dioxide	851	8,510	17,020
Metric Tons of Sulfur Dioxide	2.8	28	56
Metric Tons of Nitrogen Oxide	1.2	12	23



### Equivalent Impact

	In One Year	In 10 Years	In 20 Years
Passenger Cars off the Road	184	1,839	3,677
Passenger Car Miles Driven	2,206,355	22,063,548	44,127,097
Planted Acres of Trees	256	2,558	5,117
Gallons of Gasoline	96,908	969,079	1,938,158
Barrels of Oil	1,979	19,793	39,585
Number of Powered Homes	109	1,088	2,176



**Thank you!!**

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