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## **Ketchikan Gateway Borough Energy Performance Contracting / Feasibility Study Presentation**

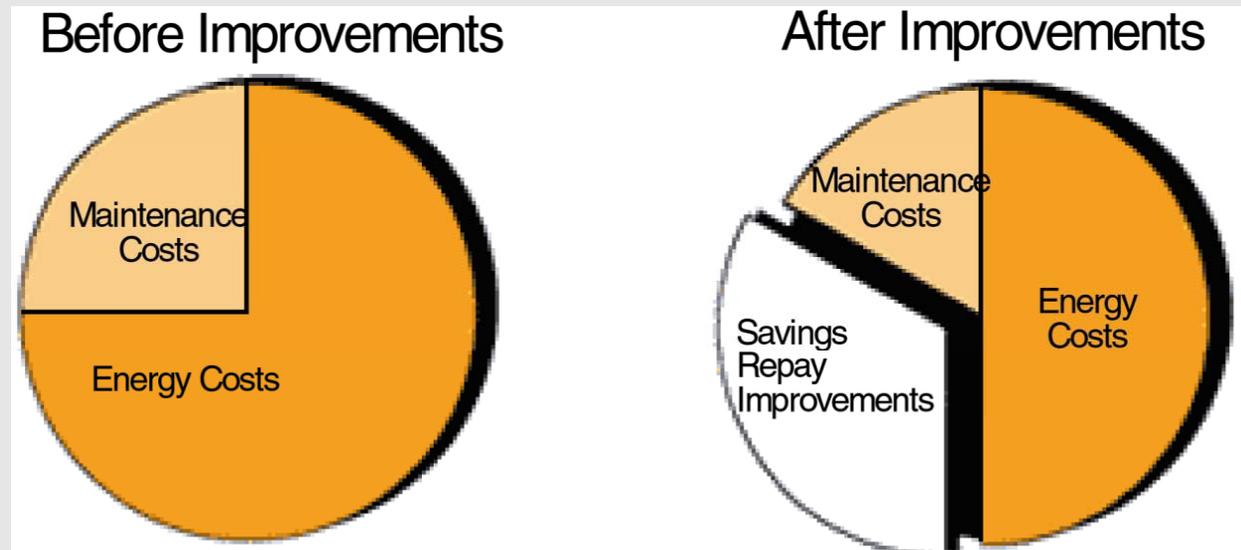
Siemens Industry, Inc.  
Energy & Environmental Solutions

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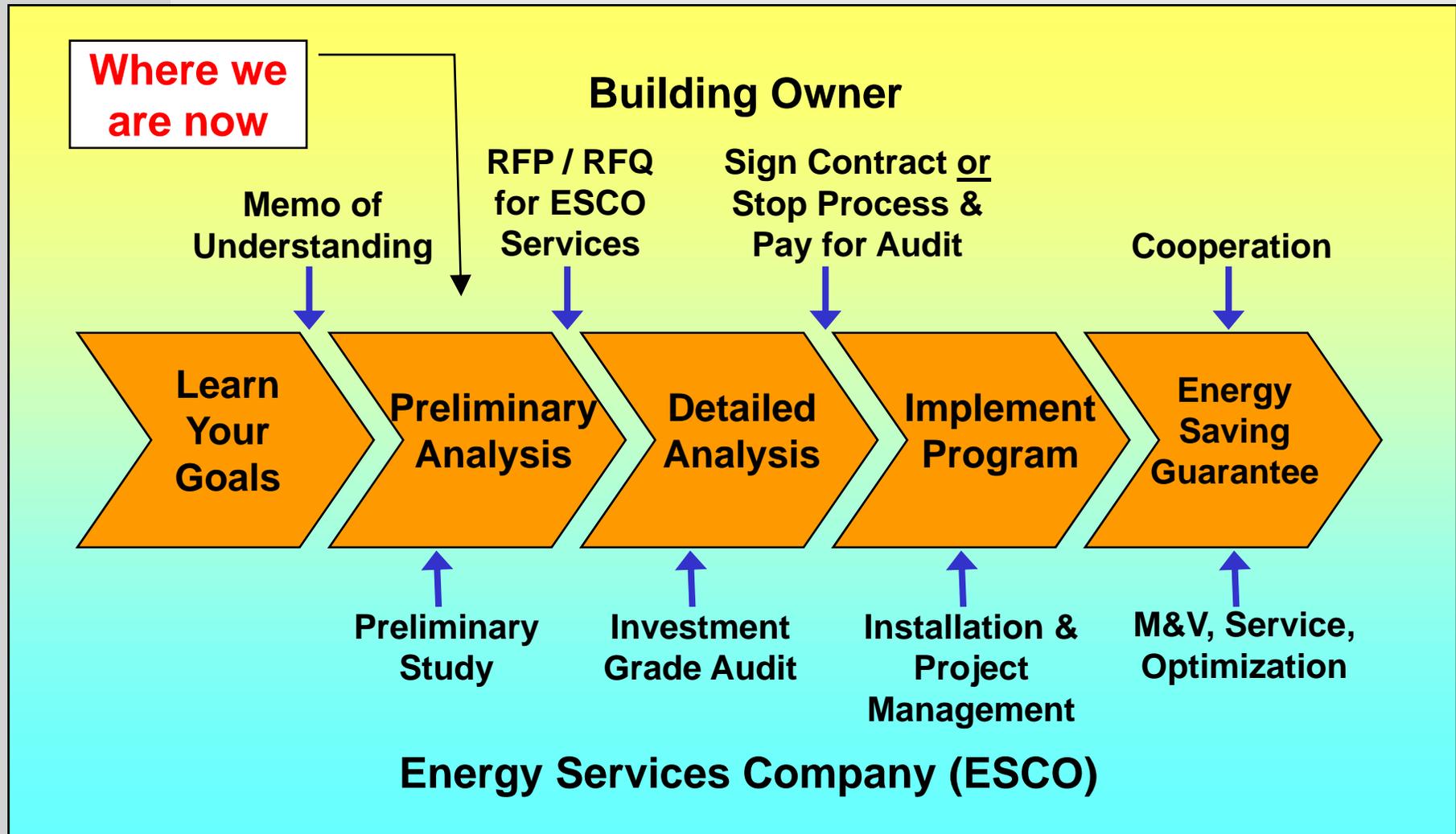
## What is Energy Performance Contracting (EPC)?

**“A self-funding contract method that allows public and private entities to improve their facilities, using savings from their energy and operational budgets to fund a project, with guaranteed results.”**



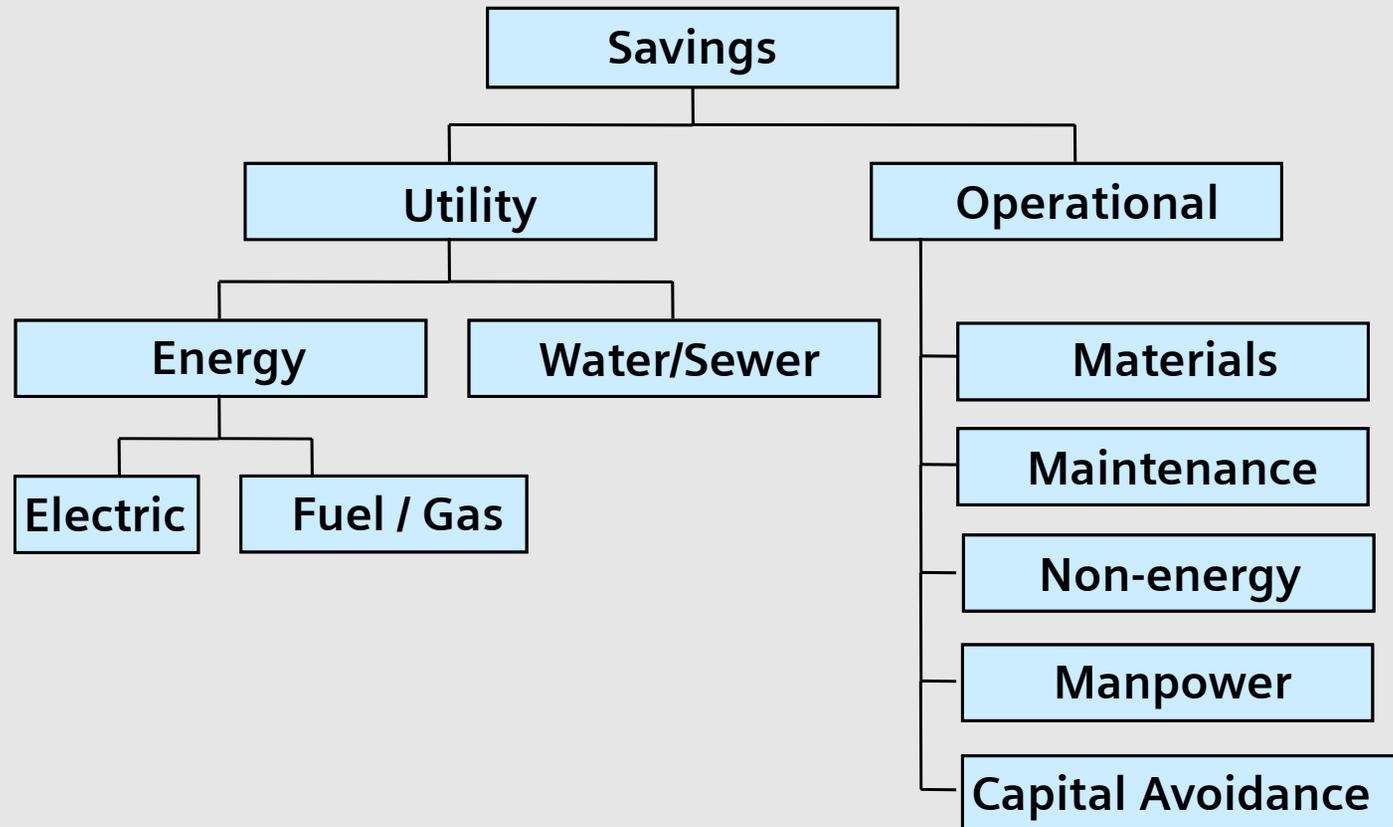


# Performance Contracting Process Overview





# Performance Contracting Saving Components





## Performance Contracting Benefits

1. Turnkey Project Development – Siemens (ESCO) is single point of accountability, concept thru end of construction, saving time & money
2. No Upfront Costs – Siemens develops project at our expense and fees are built into final project costs
3. Self-Funding – Energy & operational savings pay for improvements over time, paying for financing or replenishing bond / enterprise fund accounts
4. Beyond an Audit – Includes design, engineering, estimating, subcontractor & material bidding, construction & contract management, installation, commissioning, training
5. Guaranteed Maximum Price – Project cost known upfront, Siemens takes risk for discrepancies in counts & site conditions
6. Performance Guarantee – energy savings guaranteed and annual reports ensure return on investment (ROI) years beyond 12-month warranty



## Feasibility Study – KGB Utility Summary by Building

	KGB Facility	Electricity	Fuel Oil	Total Annual	Potential Savings
1	Wise Animal Shelter	\$1,342	\$10,476	\$11,818	\$1,900 - \$2,500
2	Bus Barn	\$9,129	\$7,561	\$16,689	\$3,600 - \$4,800
3	Fire Station #8	\$7,613	\$8,119	\$15,733	\$1,700 - \$2,250
4	White Cliff Building	\$55,625	\$0	\$55,625	\$11,600 - \$15,500
5	Meade Building	\$653	\$2,514	\$3,167	\$370 - \$450
6	Old Fire Station Warehouse	\$190	\$3,433	\$3,623	\$390 - \$520
7	Fire Station #4	\$6,638	\$10,283	\$16,921	\$1,800 - \$2,400
8	Aquatic Center	\$211,425	*\$144,712	\$356,137	\$30,800 - \$41,000
9	Fire Station #6	\$4,951	\$11,806	\$16,757	\$1,800 - \$2,400
10	Gateway Recreation Center	\$49,482	\$101,806	\$151,288	\$32,500 - \$43,000
11	Wastewater Treatment Plant	\$14,244	\$13,926	\$28,169	\$3,800 - \$5,000
	<b>Facility Totals</b>	<b>\$361,292</b>	<b>\$314,636</b>	<b>\$675,928</b>	<b>\$90,260 – \$119,820</b>

\* Aquatic Center fuel use for 3 months running on diesel generators when electricity went to \$0.30/kWh.



## KGB Savings Opportunity Overview

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**11 Borough Facilities Surveyed (163,000 sqf):**

- **Electricity: \$361,000 / year**
- **Fuel Oil: \$315,000 / year**

**Total Utility Expenditures = \$676,000 / year**

**Potential Energy Use Reduction = 15% to 20%**

**Estimated Annual Energy Savings = \$90,000 - \$120,000 / year**

**\*\*Energy Savings may be Leveraged to Fund Energy Improvements in excess of \$1.0M over a 10-year Payback Term**



## Preliminary Review of KGB Facilities



- Potential Energy Saving Improvements Identified:
  1. Lighting & Lighting Controls Retrofits – T8/LEDs
  2. Street & Park Lighting Conversions to LED
  3. Building Automation Control Upgrades
  4. HVAC Re-commissioning & Optimization
  5. Boiler & Burner Upgrades
  6. Piping Insulation
  7. Variable Volume Flow Conversions of Fans & Pumps
  8. Building Envelope Improvements
  9. Biomass Boiler / Alternative Energy Evaluations
  10. WWTP SCADA Process & Blower Upgrades
  11. Combined Heat/Power Solutions for Recreation Center Utilizing Waste Heat



## Other Opportunities: KGB School District – Utility Summary by Building

	School District Facility	Electricity (2011)	Fuel Oil (2011)	Total Annual
1	Revilla High School	\$9,781	\$23,406	\$33,187
2	Houghtaling Elementary	\$29,117	\$45,038	\$74,155
3	Schoenbar Middle School	\$44,427	\$91,651	\$136,077
4	Valley Park Elementary	\$26,286	\$71,188	\$97,474
5	Point Higgins Elementary	\$33,228	\$87,108	\$120,336
6	Ketchikan High School	\$179,938	\$490,643	\$670,582
7	Operation/Maintenance Facility	\$9,939	\$11,796	\$21,735
8	Fawn Mountain Elementary	\$34,316	\$67,070	\$101,385
	<b>Facility Totals</b>	<b>\$367,031</b>	<b>\$887,900</b>	<b>\$1,254,931</b>



## KGB School District Estimated Savings Overview

### 8 School District Facilities (468,000 sqf)

- Electricity: \$367,000 / year
- Fuel Oil: \$888,000 / year

Total Utility Expenditures (2011) = \$1,250,000

Estimated Energy Use Reduction = 10% to 15%

Potential Annual Energy Savings = \$125,000 - \$188,000 / year

**\*\* Energy Savings may be Leveraged to Fund School District Improvements approx. \$1.5M over a 10-year Payback Term**

Opportunities identified:

- ✓ Lighting & Lighting Controls Retrofits – Interior & Exterior, Parking Lots to LEDs
- ✓ Building Control Upgrades
- ✓ Heating Modifications – investigation of biomass, cogeneration
- ✓ Variable Volume Ventilation and Pumping
- ✓ Envelope Improvements