DOE-DBP-ELI/SOLUZIONA Model ESCO Transaction

what is an ESCO?

what is an ESCO?

An ESCO, or energy service company, is a business that develops, installs, and finances projects designed to improve energy efficiency and reduce operations and maintenance costs for its customers' facilities. ESCOs generally act as project developers for a wide range of tasks and assume the technical and performance risk associated with the project. What sets ESCOs apart from other firms that offer energy efficiency improvements is the concept of performance-based contracting. When an ESCO undertakes a project, the company's compensation is directly linked to the amount of energy that is actually saved.

The comprehensive energy efficiency retrofits inherent in ESCO projects typically require a large initial capital investment and may offer a relatively long payback period. The customer's debt payments are tied to the energy savings offered under the project so that the customer pays for the capital improvement with the money that comes out of the difference between pre-installation and post-installation energy use and other related costs.

what is an ESCO?

- **Energy Services Company**
- **Assist Customer with their Energy Related Needs**
  - Energy Purchases
  - Energy Efficiency
  - Operations & Maintenance
  - Integrated Energy Management Services

commodity

- **Can Provide Commodity**
  - Physical
  - Financial

- **Provides Budget Stability**
  - Sharing of Risk

energy efficiency

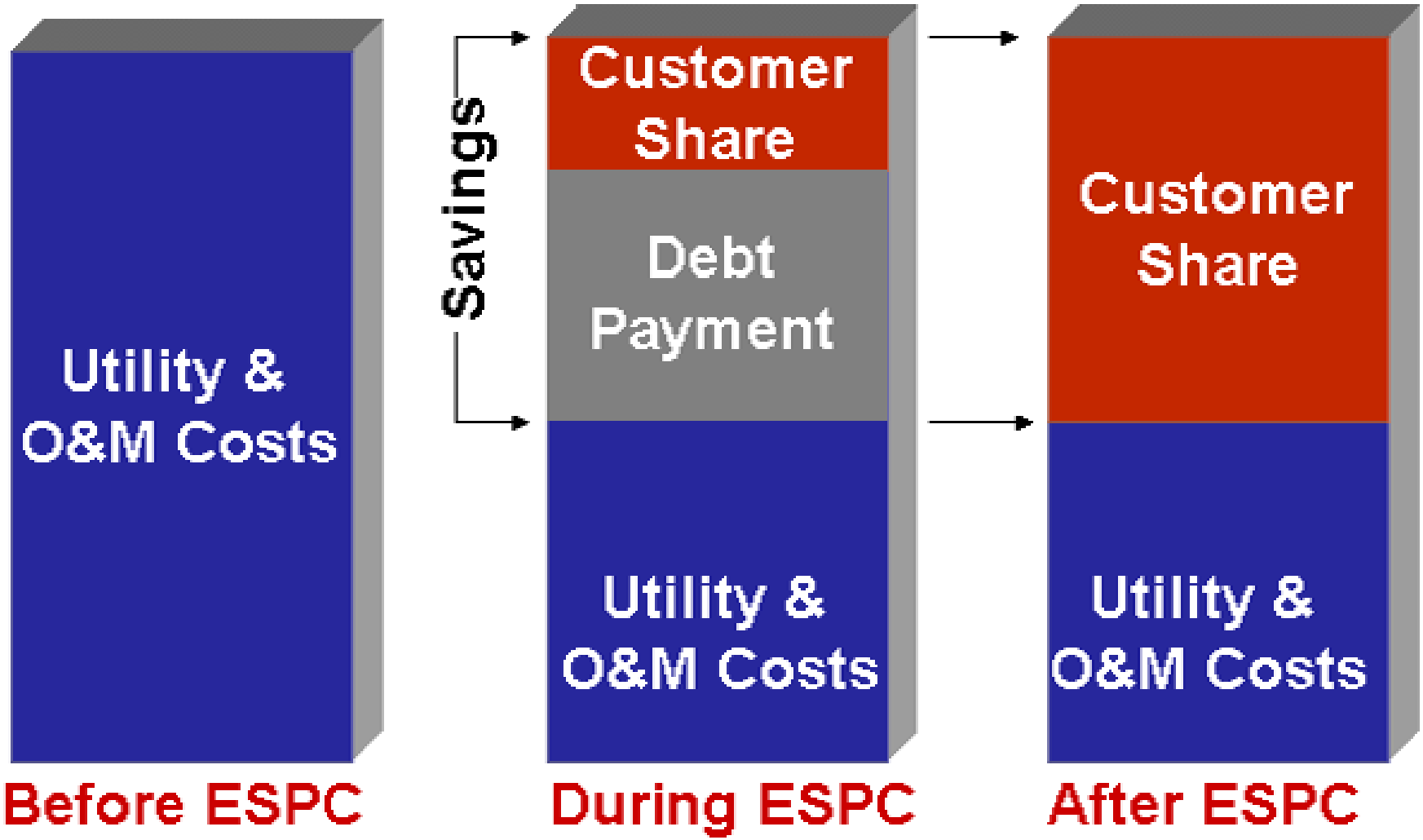
- **Provide Engineering Expertise to assist customer in identifying opportunities**
  - Customer implements improvements

- **Provide Turn-key Projects for Efficiency Improvements**
  - Performance Contracting

how can performance contracting help?

- **Uses reductions to your utility/O&M costs to finance infrastructure upgrades.**
- **Guarantees that the savings will cover the debt service.**
- **After the debt is paid off, 100% of the savings go to the customer.**

impact on utility bill



total savings makeup

- **One Time Ancillary Savings**
  - Avoided construction costs

- **Annual Savings**
  - Energy savings
  - O&M savings
    - Labor
    - Material

total savings calculations (sample)

- Annual energy savings of $180K
+ Annual O&M savings of $35K
- Construction cost of $1.6M
- Annual debt payment of $200K
+ M&V, annual expenses of $3K
➢ Annual cash flow: $8K

Total savings
= $215K

Total expenses
= $203K

annual savings breakdown

- Baseline Case measurements
- ❑ Post-installation measurements
- ➢ Difference is annual savings
  - – Energy savings
  - – O&M savings

- Planned construction costs
- ❑ New construction costs
- ➢ Difference is one-time ancillary savings

integrated energy management services

- ESCO handles all aspects of Energy Sector
- Purchase of Commodity
- Own & Operate Central Plant
- Provide Lighted Conditioned Space
- Customer pays one bill

recap

- **An ESCO can be your energy partner**
  - Allow you to focus on your core business
  - Assist you in budget stabilization
- **Reduce your risk in the market place**
- **Provide a source of funds for infrastructure improvements**

DOE-DBP-ELI/SOLUZIONA Model ESCO Transaction

understanding Energy Efficiency

energy efficiency - is it misunderstood?

- **Energy Efficiency (EE) is an investment, not an expense**
  - Commonly classified as a low-priority expense
- **The users' choice of EE Technology is oftentimes determined by the "least-cost" option**
- **Since funds that can be used for EE are often spent on needs more relevant to the organization's objective, most companies need assistance**
- **The ESCO industry exists to serve this EE need**
  - Energy Service Provider or Energy Service Company?
- **EE projects - are they bankable?**

outsourcing energy efficiency services

- **Obtain specialized expertise in EE engineering, EE technologies, project development & installation, energy supply**
- **Get "one-stop-shop" convenience**
- **Mobilize capital for investment program**
- **Obtain "off-balance sheet" financing**
- **Preserve internal resources**
- **Manage & transfer project risk to the project developer/contractor**

business of performance contracting

- **Performance Contracting (PC) allows customers to use future energy savings to upgrade facilities and cut operating costs**
- **ESCO identifies energy saving opportunities in the customer's building, equipment and/or industrial processes which are acceptable to the owner**
- **No initial cost to the owner**
- **Guarantees energy savings**

economic & environmental advantages

- **Economic Value**
  - ↓ energy costs per unit of production
  - ↑ productivity
  - 🗐🗐🗐 efficiency, 🗐 conservation
  - ↑ job generation
  - ↓ capitalization

- **Environmental Value**
  - ↓ pollution
  - ↑ healthy work environment
  - ↑ response to global climate concerns
  - ↓ medical costs

customer advantages

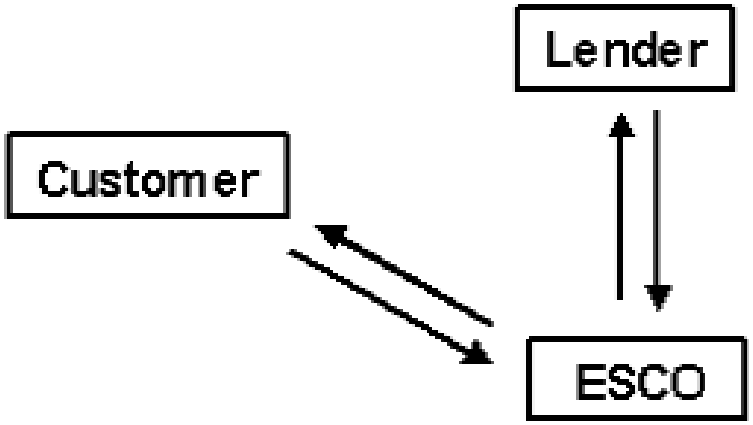
- **Immediate upgrade of facilities and reduced operating costs**
- **Availability of an ESCO's energy efficiency expertise**
- **Positive cash flow**
- **Opportunity to use the money that would have been used for upgrades to meet other needs**
- **Improved and more energy efficient operations and maintenance**

customer advantages

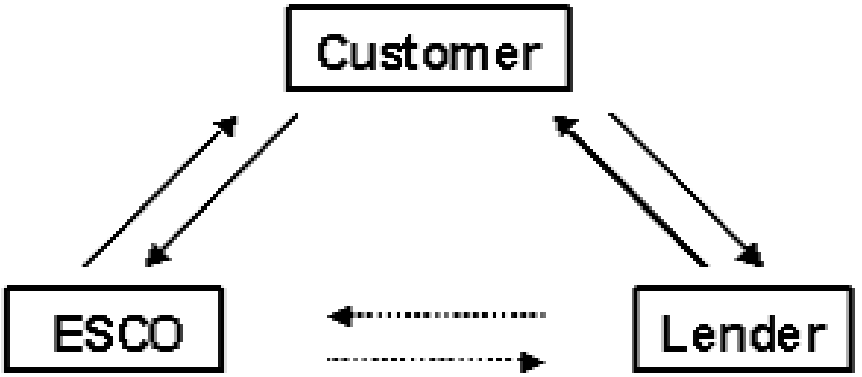
- **Risks normally incurred by customer are absorbed by the ESCO**
- **More comfortable, productive environment**
- **All ESCO services are paid for with the money that would have been used to pay for wasted energy**
- **The opportunity to use what facility personnel already know and put it into practice using avoided utility costs**

finance models for performance contracting

- **Two dominant models for financing PC's**



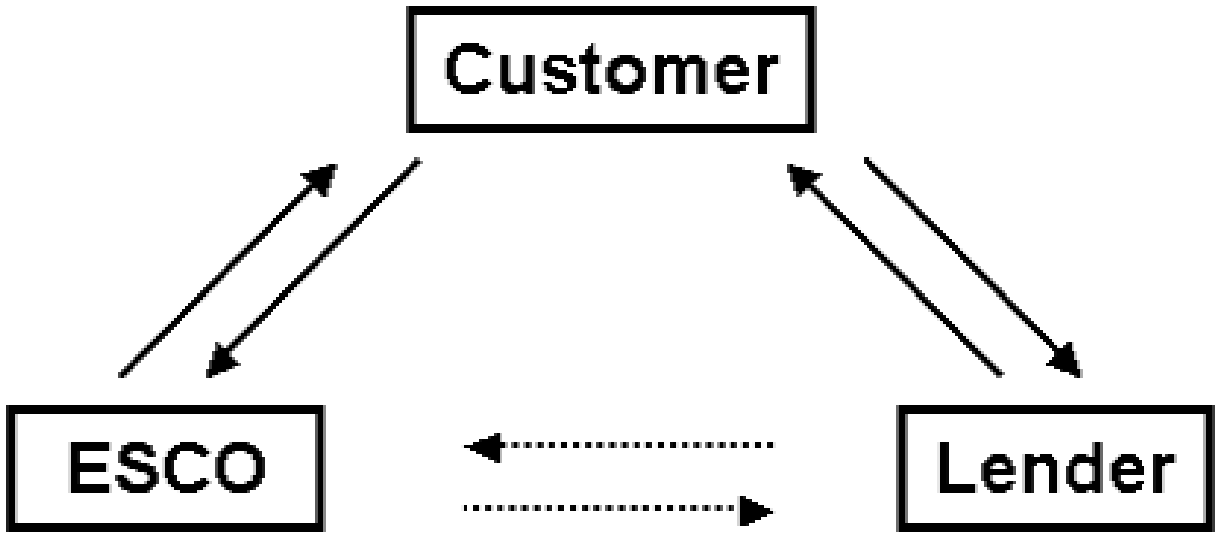
French model based on concept of Shared Savings



North American model based on Guaranteed Savings

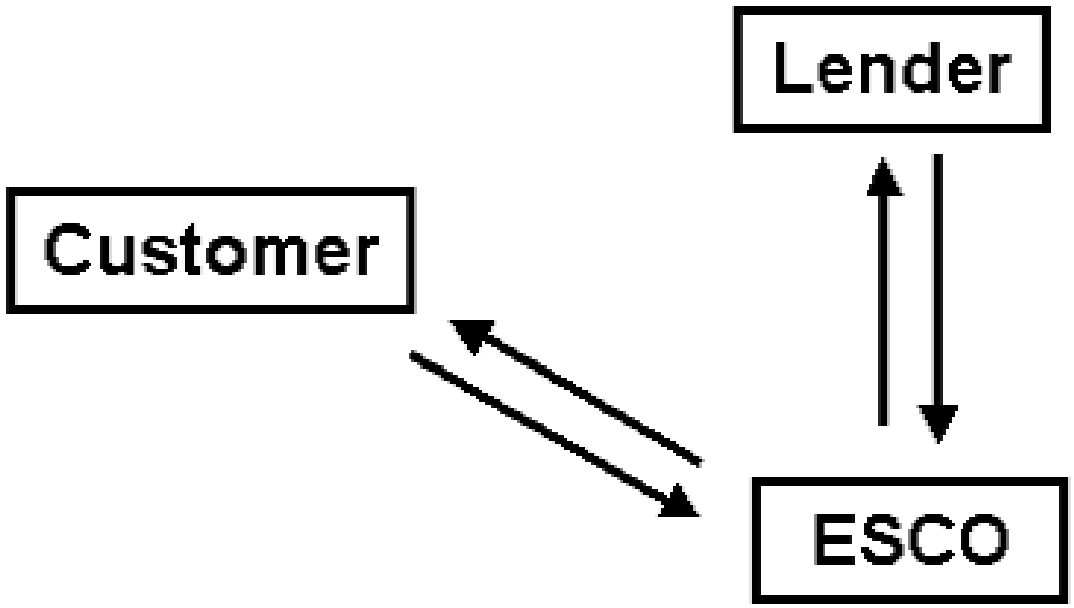
guaranteed savings

- **Owner carries credit risk; ESCO carries performance risk**
- **Requires credit-worthy customer**
- **Offers best opportunity for ESCO industry to grow**



shared savings

- **ESCO carries both performance and credit risks**
- **Based on a self-funding approach**
- **Can serve customers that do not have credit**



steps in ESCO project structuring

- Preliminary Assessment
- Investment-Grade Audit
- Obtain approval for Measures
- Arrange financing
- Execute contract
- Implement approved Measures
- Maintain equipment
- O&M training
- Monitor
- Verify savings
- Project management

ESCO banking, a financial model

create a bankable project!

- Investment Grade Energy Audit
- Solid Calculations
- Measurement & Savings Verification

TECHNICAL

- Contracts are manageable
- Contracts protect investors' interests

LEGAL

- Financiers requirements are met
- Contracts are acceptable

FINANCIAL

DBP: a bankable project

- **why the Development Bank of the Philippines (DBP)?**
  - largest local financing institution in wholesale banking
  - environment portfolio of PhP 8 billion (EISCP)
  - leads local banking industry in EMS
  - recent 14001 certification
  - 34 year-old building

- **DBP ESCO's its EMS Project**
  - DBP creates a bankable performance contract
  - ESCO applies with DBP accredited conduit bank, uses the bankable performance contract as collateral
  - Accredited conduit bank applies with DBP for funding from its EISCP fund

role of DBP

- **Champions EMS for Government and Financial Services Sector**

- **Catalyst in developing the ESCO Industry and Smartlight**

DBP as EMS Champion

- **Creates a model for all sectors, true to its development banking mission**

- **Government model for a DSM Project**

DBP as Catalyst

- Provide program credit support to develop the ESCO industry
- Model for 1st ESCO performance contract
- Model for bulk procurement for EE lighting products and retrofitting

ELI-DBP-DOE working together

- **DBP makes itself available to be "ESCOed"**
  - Still work toward objective to be ISO 14000 certified
  - Contributes to Government's DSM Program
  - Contributes to the reduction of greenhouse gas emissions
  - Develop new processes and standards across sectors
  - Lends their good name and funds to create a new financial model

ELI-DBP-DOE working together

- **SOLZUIONA/ELI contributes knowledge of the ESCO Industry:**
  - assist DBP in procuring the services of the ESCO
  - assist in setting procurement standards
  - assist in developing the right and bankable transaction model, and expand its environmental portfolio

ELI Philippines: ESCO transaction support

- **Provide ESCO business training & capacity building**
  - assist EE businesses to develop full-service ESCO
  - facilitate joint ventures between Local & International firms

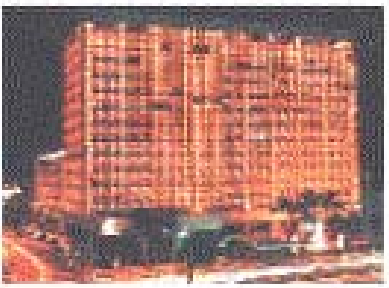
- **Assist in development of Model ESCO Transaction**
  - project development
  - assist in business planning & market research
  - provide business tools (e.g., contracts, monitoring & verification protocols, proposal models, financial analysis)

- **Arrange project & ESCO finance facilities**
  - Evaluate finance alternatives, structure and arrange financing
  - Prepare finance placement memoranda

existing lighting system

(1) Operation, hrs.	Fixture Type	(2) Watts per Fixture	Number of Fixtures	(3) Annual Energy Cost, PHP
2,340	2 x 40W T-12	95	6,611	6,980,720.18

Total kWh / Year: 1,469,625.00



(1) Days per year (@ 9 hrs per day)
(2) Ave. est. electronic & magnetic ballasts combined
(3) Cost of 1 kWh: PHP 4.75

proposed lighting system

Proposed Lighting System A:

Operation*	Fixture Type	Watts/fixture	Number of Fixtures	Annual Energy Cost^
2340	1 X 36W T-8 HO	36	6611	2,645,325.54
		Total KWH/Year:	**556,911**	**PhP 4,335,394.64 Saved/yr.**

Proposed Lighting System B:

Operation*	Fixture Type	Watts/fixture	Number of Fixtures	Annual Energy Cost^
2340	2 X 36W T8 HO	70	5000	3,890,250.00
		Total KWH/Year:	**819,000**	**PhP 3,090,470.18 Saved/yr.**

Cost of Ballast and Retrofit Materials

Approx Cost of Retrofit of Existing Fixtures to 1 X 36W	6611	@	2300 PhP each =	**15,205,300.00**
Approx Cost of Retrtofit using 2 X 36 W HO	5,000	@	3000 PhP each =	**15,000,000.00**

cash flow analysis

System A (unit: PhP)

Year	1	2	3	4	5
Cost of Retrofit	15,205,300.00				
Energy Savings	4,335,394.64	4,335,394.64	4,335,394.64	4,335,394.64	4,335,394.64
Net Cash/Yr.	-10,869,905.37	4,335,394.64	4,335,394.64	4,335,394.64	4,335,394.64
Cum. Cash Flow	**-10,869,905.37**	**-6,534,510.73**	**-2,199,116.10**	**2,136,278.54**	**6,471,673.17**

	Years	Months	Equals...
Payback Period:	3.50724704	42.08696448	**3 Year and 6.1 months**

System B (unit: PhP)

Year	1	2	3	4	5
Cost of Retrofit	15,000,000.00				
Energy Savings	3,090,470.18	3,090,470.18	3,090,470.18	3,090,470.18	3,090,470.18
Net Cash/Yr.	-11,909,529.83	3,090,470.18	3,090,470.18	3,090,470.18	3,090,470.18
Cum. Cash Flow	**-11,909,529.83**	**-8,819,059.65**	**-5,728,589.48**	**-2,638,119.30**	**452,350.87**

	Years	Months	Equals...
Payback Period:	4.853630403	58.24356483	**4 Year and 10.2 months**

ISO 14001

Pollution Reduction

912,715 KWH saved/yr. = 53,850 Kg of CO_2

About 2,716,413 Lbs of Acid Rain

About 136,023 Lbs of NOx (smog)*

Natural Resource Consumption Reduction

About 2,122,592 Lbs of Coal

About 1,738,504 Gal. of Fuel Oil**

About 22,591,947 Cu Ft of Natural Gas

* Equivalent to 33 cars removed from the roads

** About 31,609 Barrels of Oil

ELI ESCO prospects on the horizon

- **CPI Energy to ESCO leading chip manufacturer:**
  - assist DBP in procuring the services of the ESCO
  - assist in setting procurement standards
  - assist in developing the right and bankable transaction model, and expand its environmental portfolio

philippine ESCO projects

- **In Summary**
  - For the project sponsors, ESCO projects can yield substantial benefits
  - The ESCO may participate by sharing in the risks and rewards of the transaction
  - An ESCO project can translate itself into a viable, bankable transaction