

Energy Performance Contracts

Energy for local Sustainability

Palmela

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What is performance contracting?

An Energy Services Company (ESCO)...

- Identifies energy saving measures
- Designs and implements the works
- Guarantees the energy savings

Why bother?

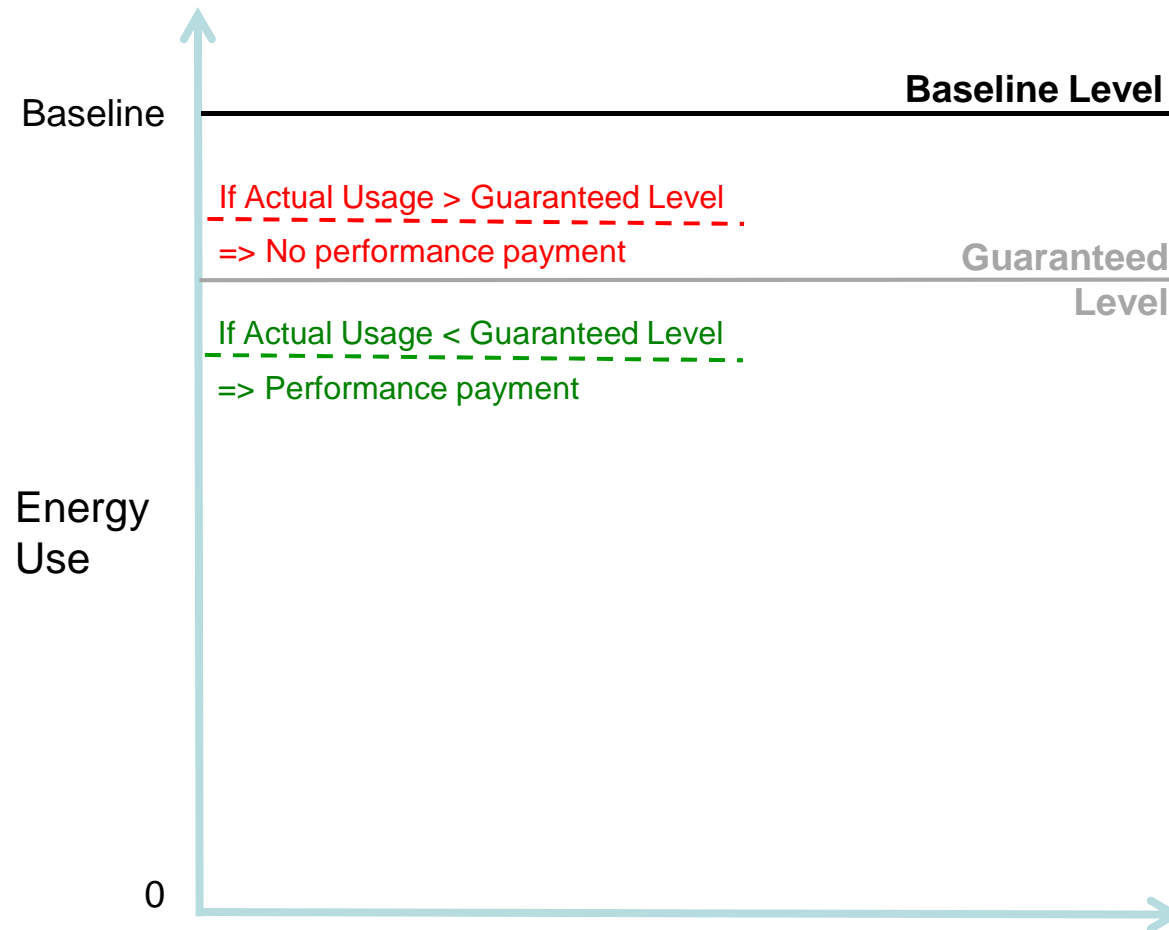
- ESCO brings expertise – identify, design, implementation => maximum savings
- Can achieve large scale energy savings, maintenance savings, and facility upgrades
 - With single procurement process
 - With little or no internal funds
- The energy performance guarantee makes projects “bankable” (i.e. it easier to finance the work)
 - Internal management more comfortable
 - Any source of grant funds confident savings will be achieved
 - External financier confident the savings will be achieved and that these savings will be sufficient to recover the loan
 - The ESCO may finance the works directly (i.e. Be the financier)

Energy Performance Related Payments

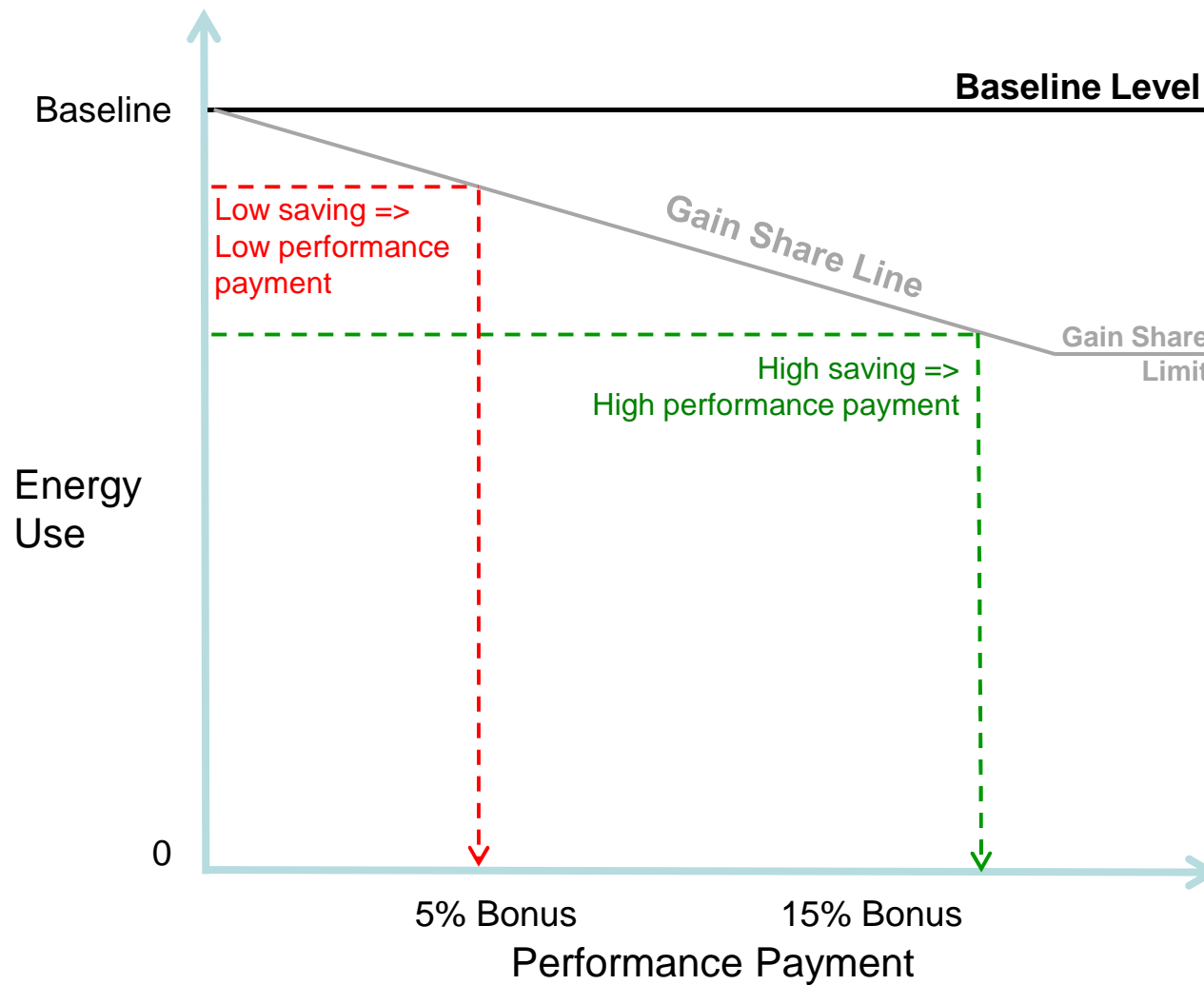
What EPRP Is

- ESCO guarantees energy savings, e.g. 15%
- Performance payment
 - Fixed: If savings < 15%, ESCO loses 5% of cost of works
 - Gain share: For each 1% savings, ESCO bonus 0.5% of cost of works
- Payment mechanism
 - ESCO paid on completion less performance related payment
 - E.g. 95% now, 5% on verification of savings
 - ESCO paid performance related payment when savings are verified, typically 1 year
- Energy performance risk shared
=> client & ESCO have same objectives
- Can be applied to products, works, design services, facilities management, etc.

EPRP Fixed Performance Guarantee



EPRP Gain Share Arrangement



EPRP Examples

Products

Equipment supplied with a money-back guarantee that it will deliver a %/kWh reduction in energy use.

Equipment lease with payments matched to value of energy savings delivered. If savings are below expected, then term of lease extended.

Services

Facilities or maintenance management service incorporating a bonus payment for each 1% reduction in facility energy use.

Energy management service with guarantee that value of energy savings will exceed the cost of the annual service fee.

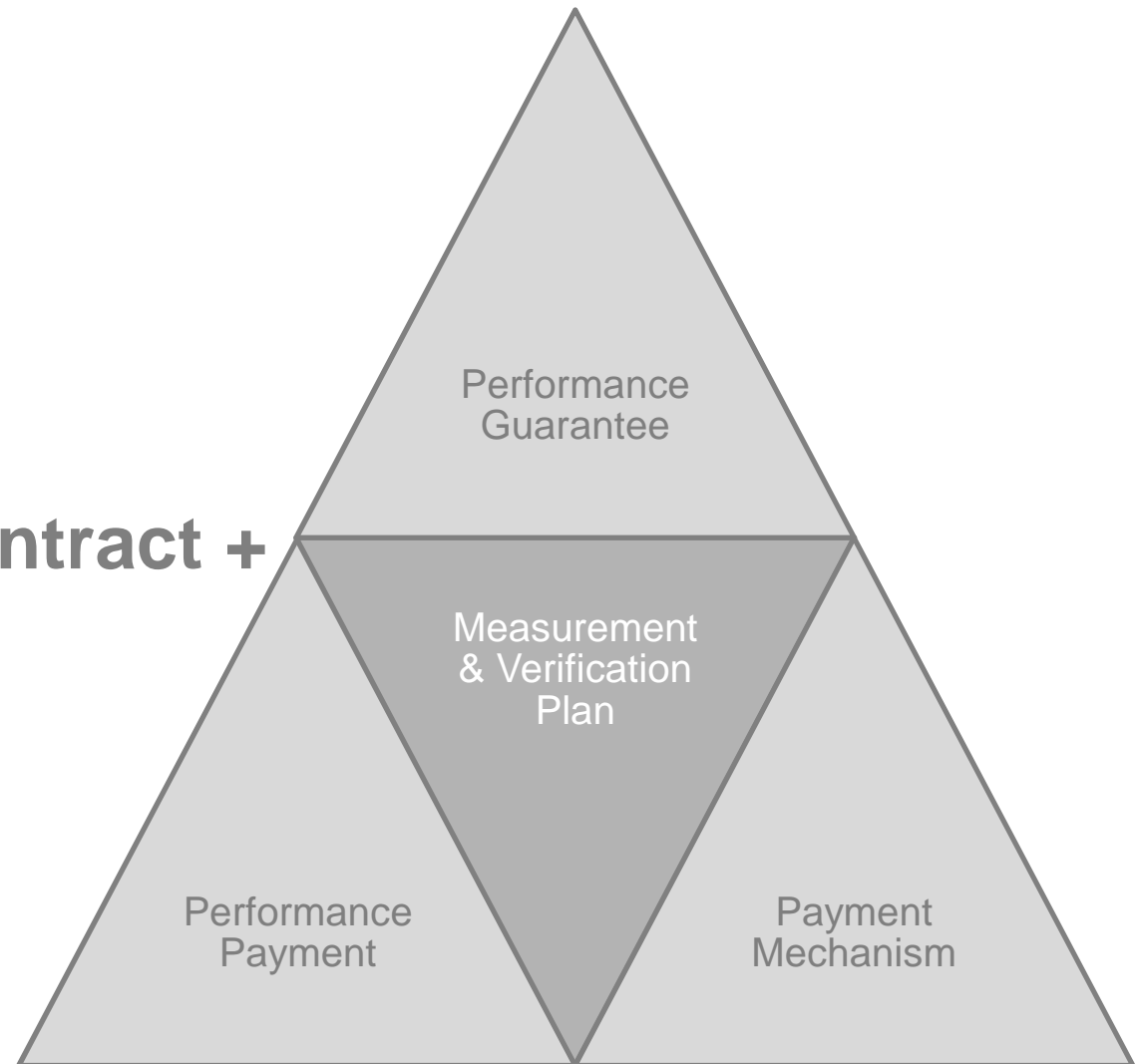
Works

Contractor upgrades a boiler house and guarantees a 15% improvement in energy efficiency. If savings not achieved, then contractor forfeits an agreed % retention amount.

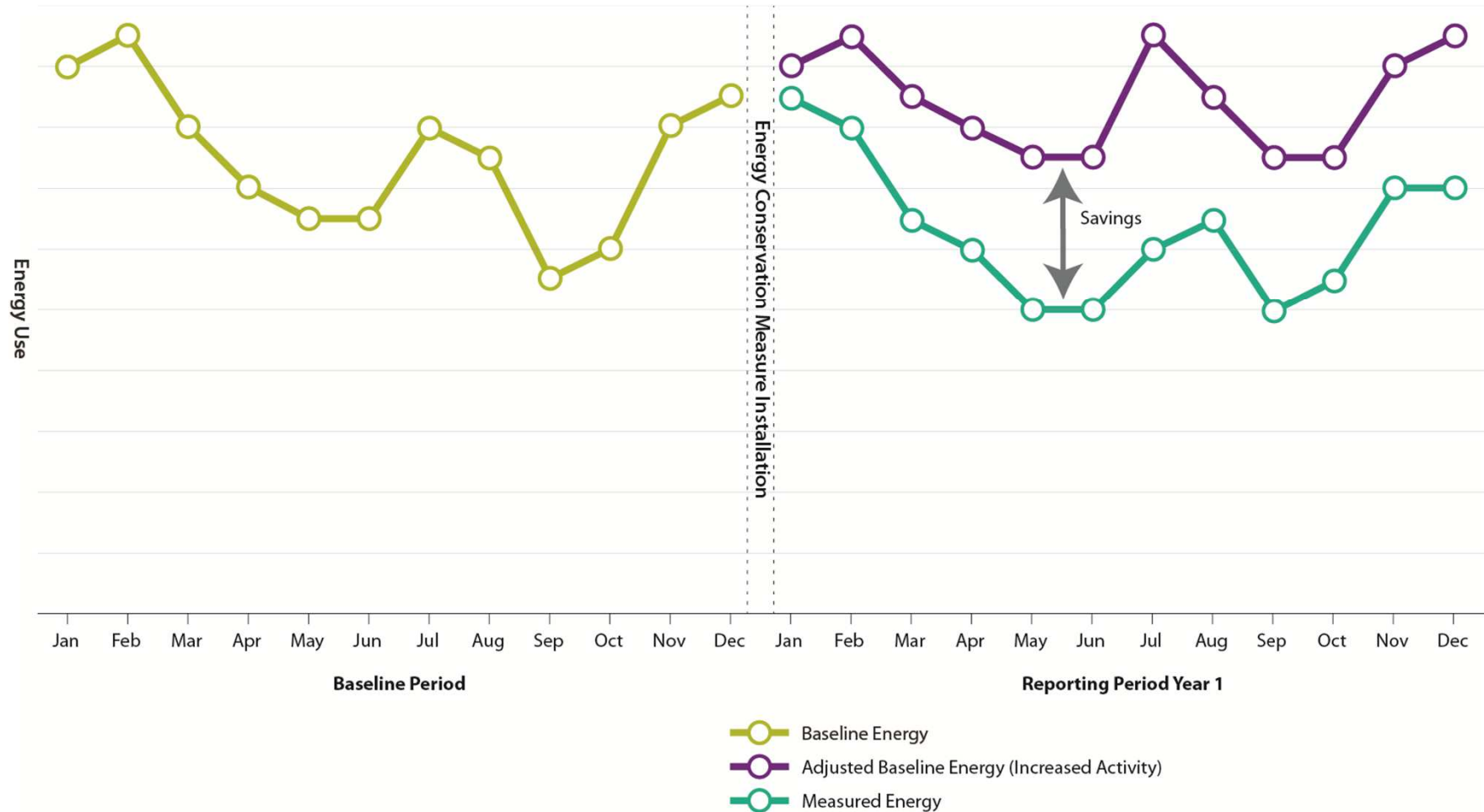
Contractor upgrades ventilation system control with target savings in AHU fan power of 10%. A bonus is paid if actual savings exceed target; a penalty is deducted if actual savings are less than target

Key Components of EPRP Contract

EPRP = Traditional contract +



Measurement & Verification of Savings



Source: EVO

FIG.8 MEASURING AND VERIFYING ENERGY SAVINGS AS A RESULT OF AN ENERGY PERFORMANCE CONTRACT.

Benefits of EPRP

- Simple to procure
- Easy to contract: Standard contract + performance clauses
- Low implementation cost
- Customer & ESCO share energy performance risk
- Improve management & financier confidence
- Good way to start energy performance market

Energy Performance Contracts

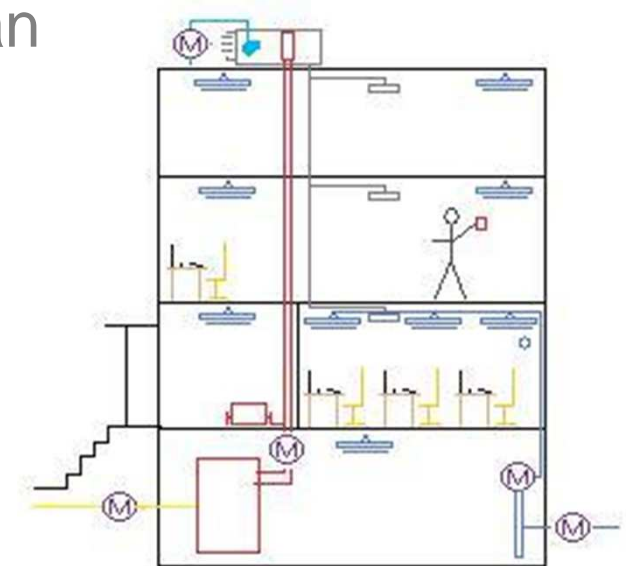
Traditional Project

- Expected savings €50k p.a.
- Client pays contractors €330k for energy projects
- Client borrows money 7 year 'general' loan
- Client actually saves €36k p.a.

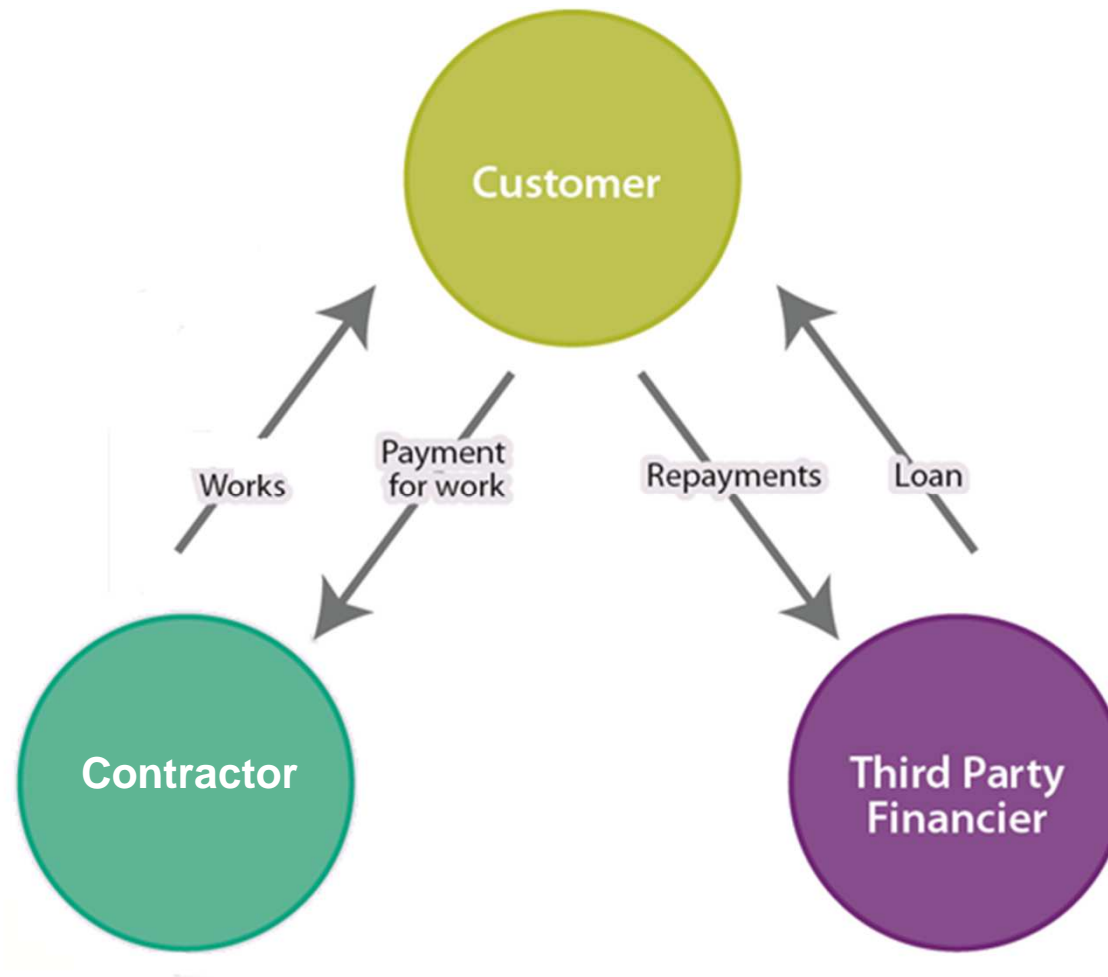


Client view

- Client closely involved (time)
- Client has energy performance risk
- Client has to arrange loan
- Client must repay loan in full



Traditional Model

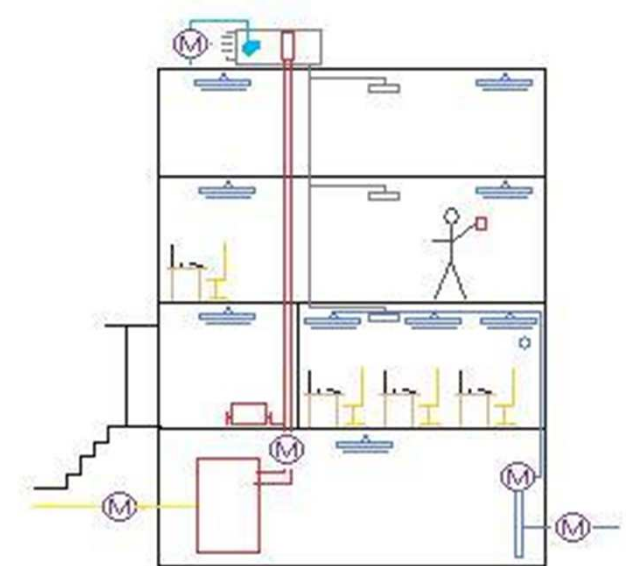


Energy Performance Contract (Shared Savings)

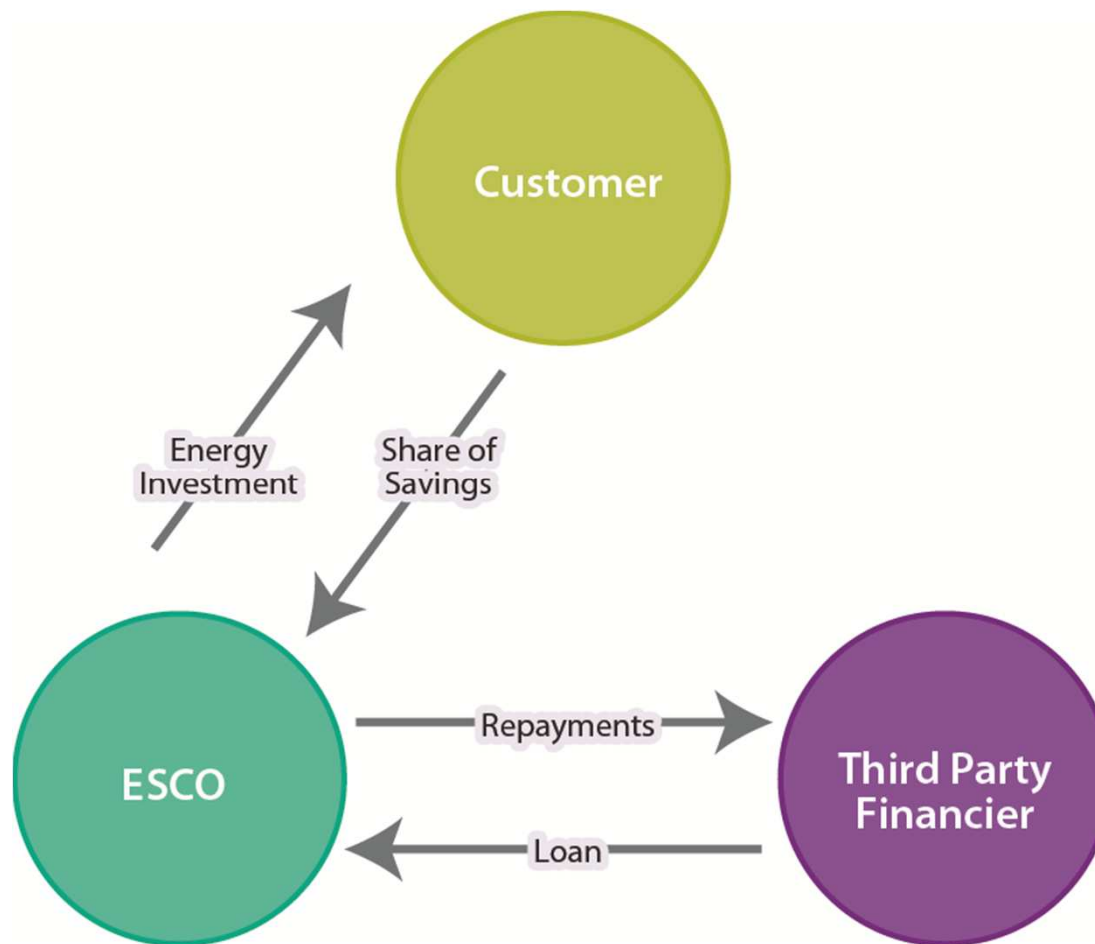
- Expected savings €50k p.a.
- Client contracts with ESCO to finance and deliver savings over 13 years
- Project saves €54k p.a.
- Client pays ESCO 90% for 13 years, keeps balance.

Client view

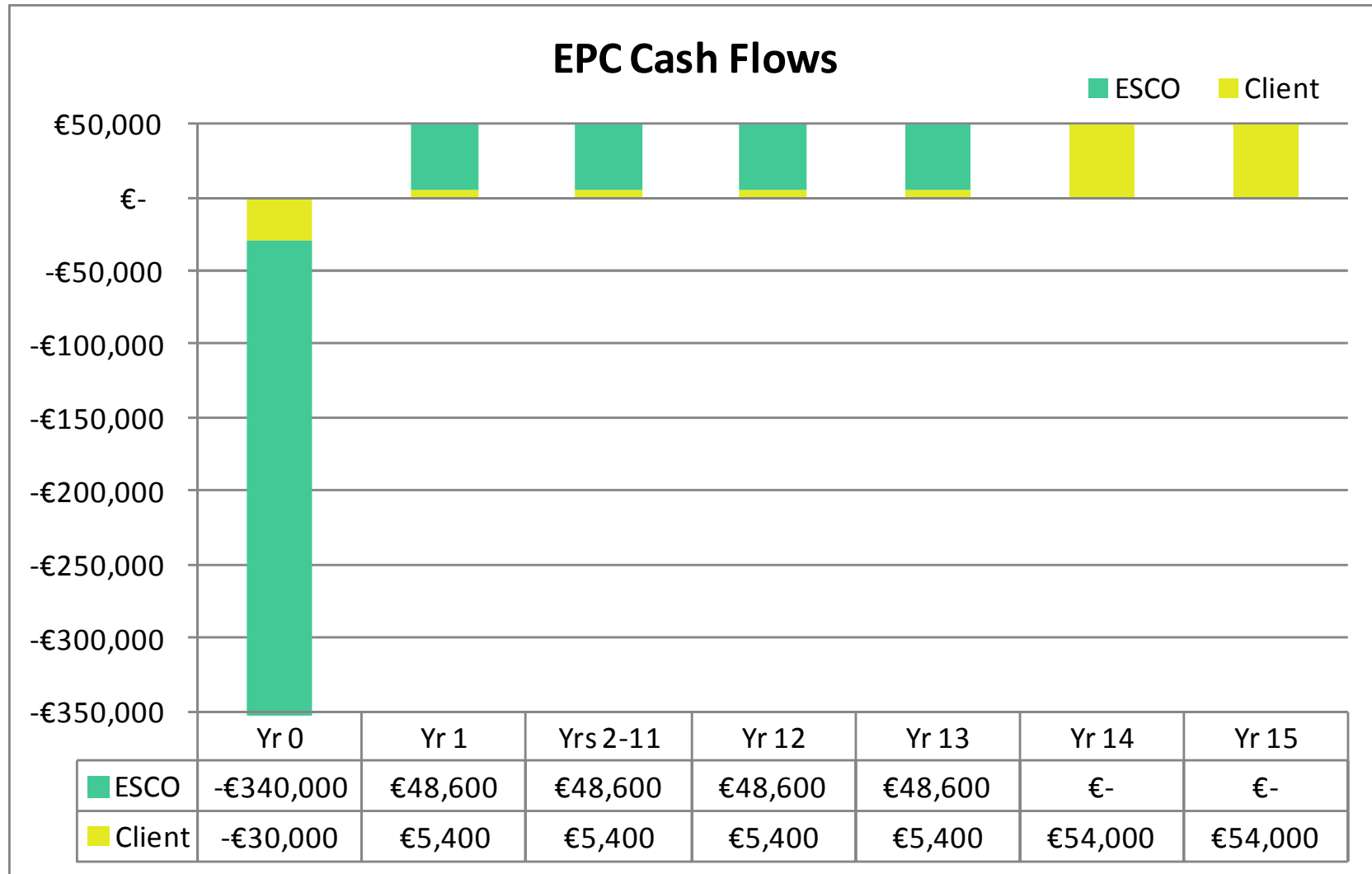
- Client **not** closely involved (time)
- **No** energy performance risk
- **ESCO** arranges finance
- **ESCO** must repay loan in full



EPC Shared Savings Model



EPC - simple cash flows



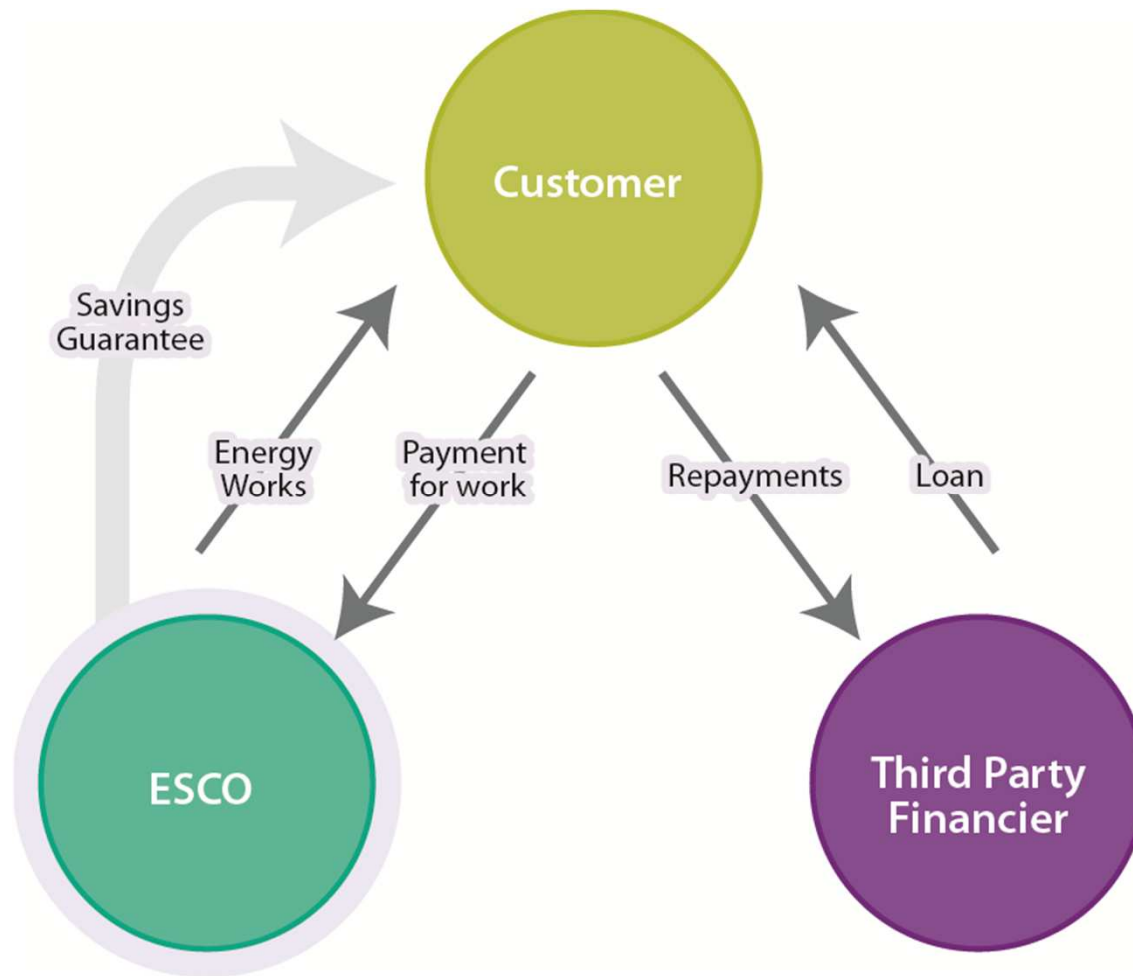
Energy Performance Contract (Guaranteed Savings)

- Expected savings €50k p.a.
- Client contracts with ESCO to deliver and guarantee savings over 7 years
- Client borrows the money for 30 years
- Project saves €45k p.a.
- ESCO pays client €5k p.a. (savings shortfall) or does more work.
- Client pays ESCO annual fee for guarantee

Client view

- Client **not** closely involved (time)
- **No** energy performance risk
- **Client** arranges finance
- **Client** must repay loan in full, but ESCO covers shortfall

EPC Guaranteed Savings Model



Evaluating a project for EPC



EPC in a nutshell

A core principle Energy Performance Contracts is that energy efficiency investments are paid for over time by the value of energy savings achieved.



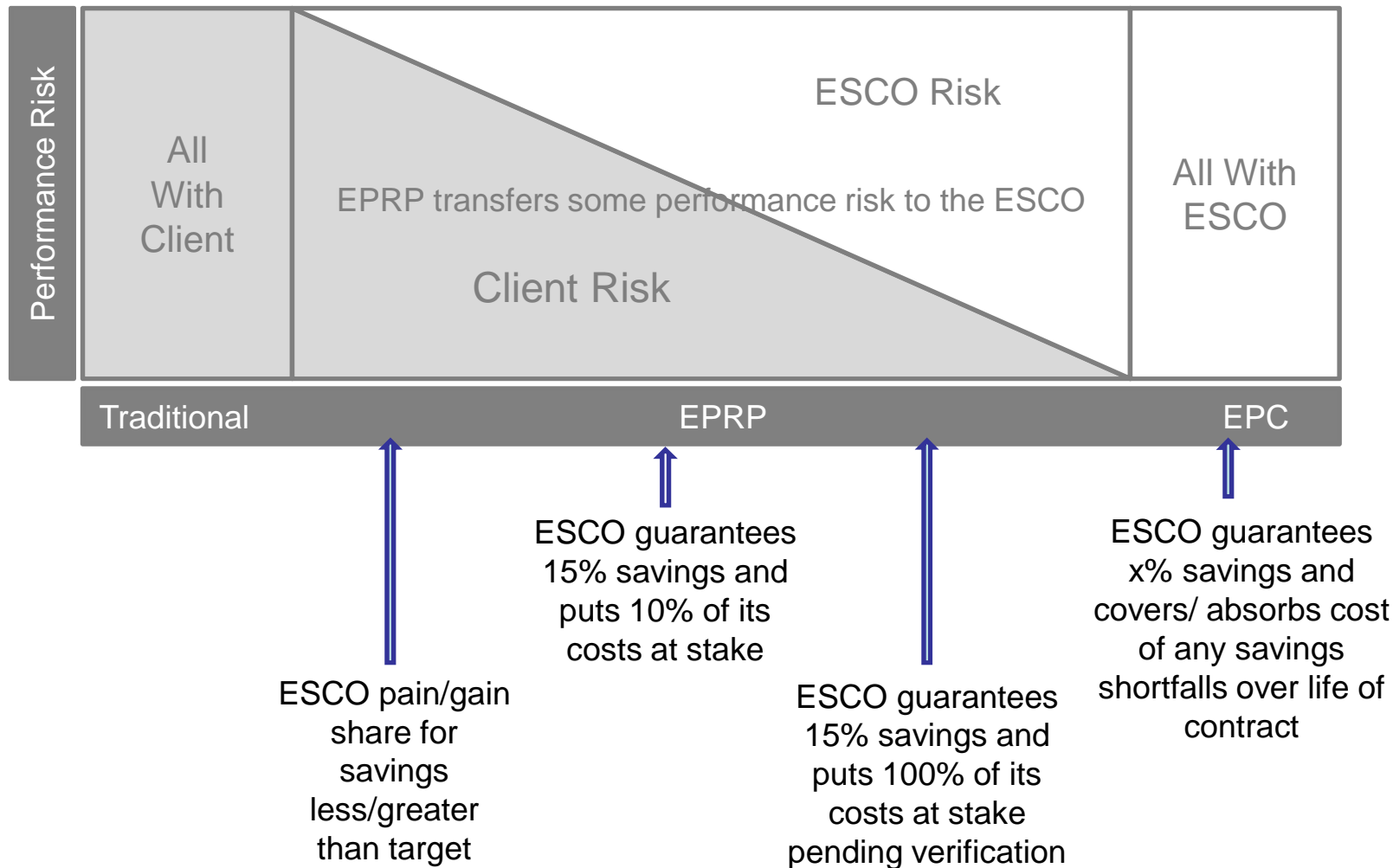
Key elements of any energy performance contract:

- The ESCO undertakes to improve the *energy efficiency* of a facility.
- The contract is structured so that the compensation is contingent on demonstrated performance, i.e. *the ESCO takes a risk*.
- There is an agreed method for *measuring and verifying* energy savings.

An EPC arrangement may involve the energy efficiency investment being financed by either the ESCO or a 3rd party financier

...this is a principal benefit!

Energy Performance Risk Allocation



Main Points

EPRP

- Simple to procure
- Standard contract + performance clauses
- Share energy performance risk
- Low implementation cost
- Improve management & financier confidence
- Good way to start energy performance market
- Measure & verify savings

EPC

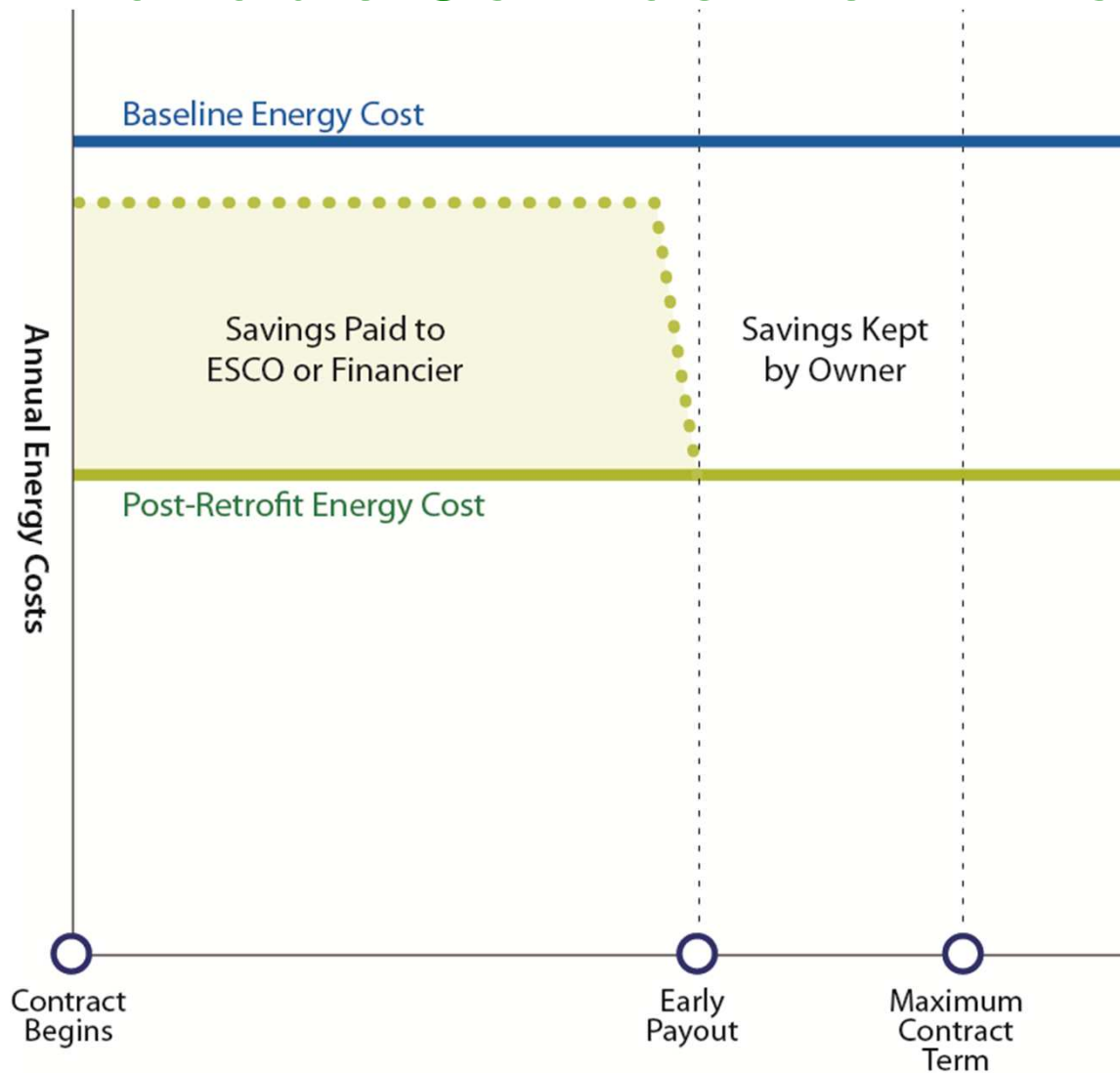
- More complex procurement process
- Special contract
- High transaction costs / minimum efficient scale
- **Transfer energy performance risk**
- **Facilitate financing (+ ESCO finance option)**
- **Good way to get large scale savings**
- Measure & verify savings

Thank You

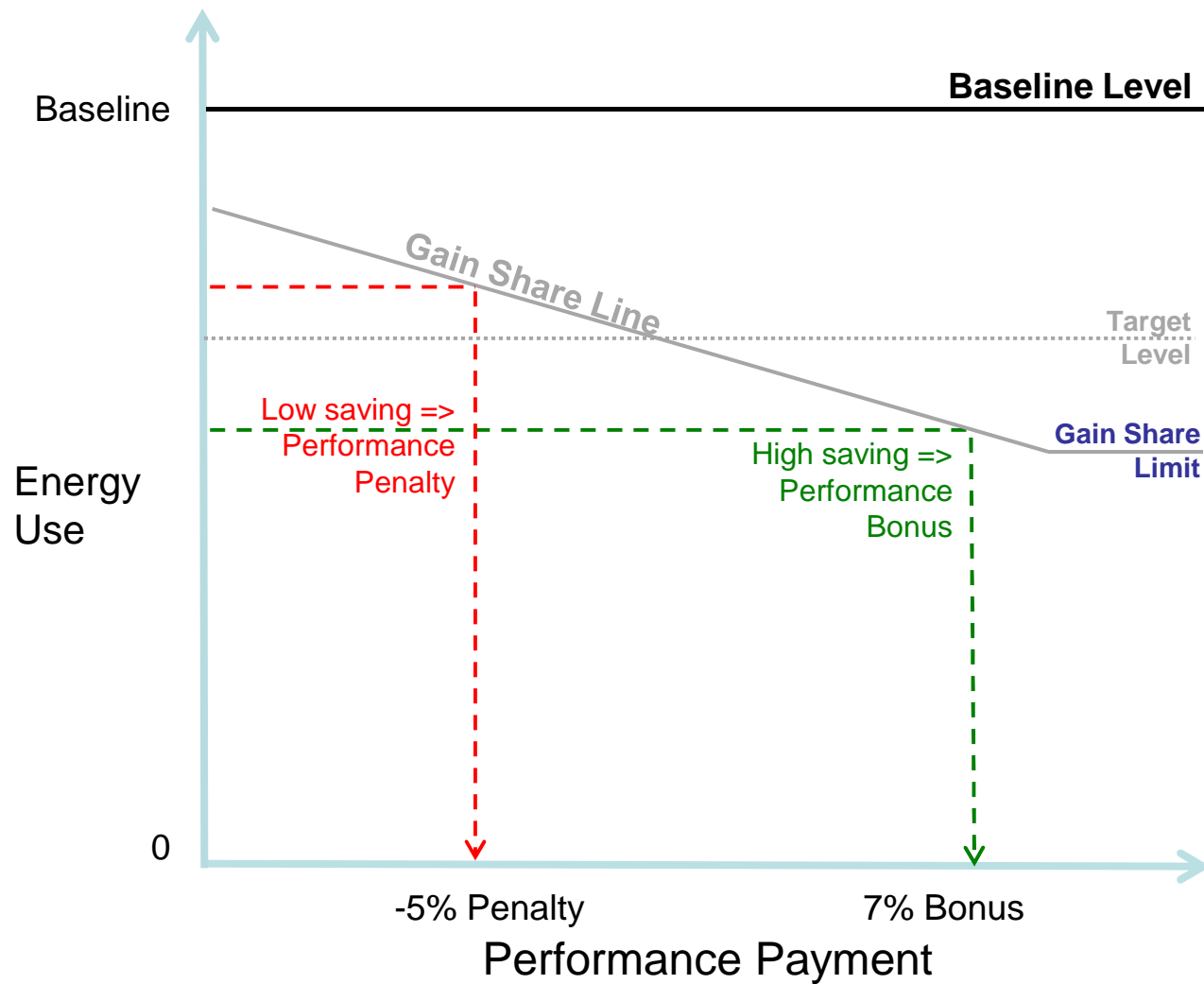
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Financing EPCs

Variable Contract Term Model



EPRP Combined Target with Pain / Gain Share

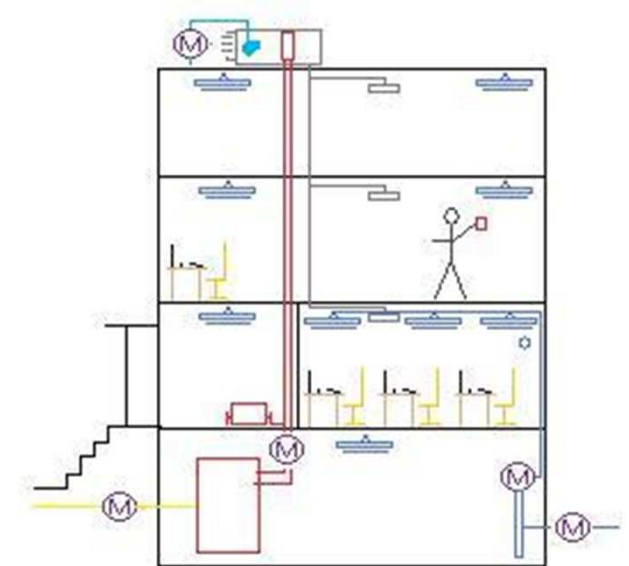


Energy Performance Related Payment

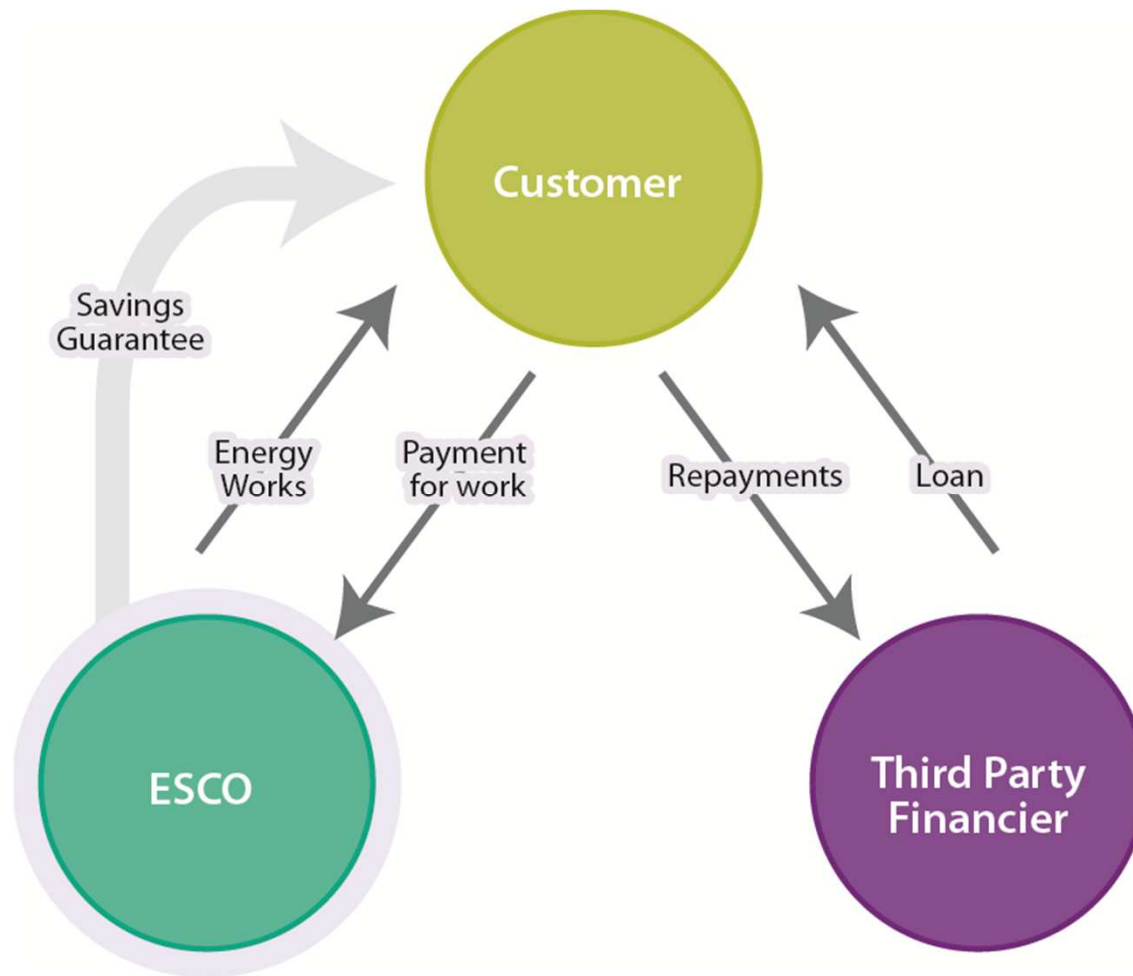
- Expected savings €40k p.a.
- Client pays ESCO(s) €324k for energy projects
- Client retains €16k until savings verified
- Client pays retention + bonus €3.2k
- Client borrows money 'project' loan
- Client actually saves €42k p.a.

Client view

- Client closely involved (time)
- Client **shares** energy performance risk
- Client has to arrange loan
- Client must repay loan in full

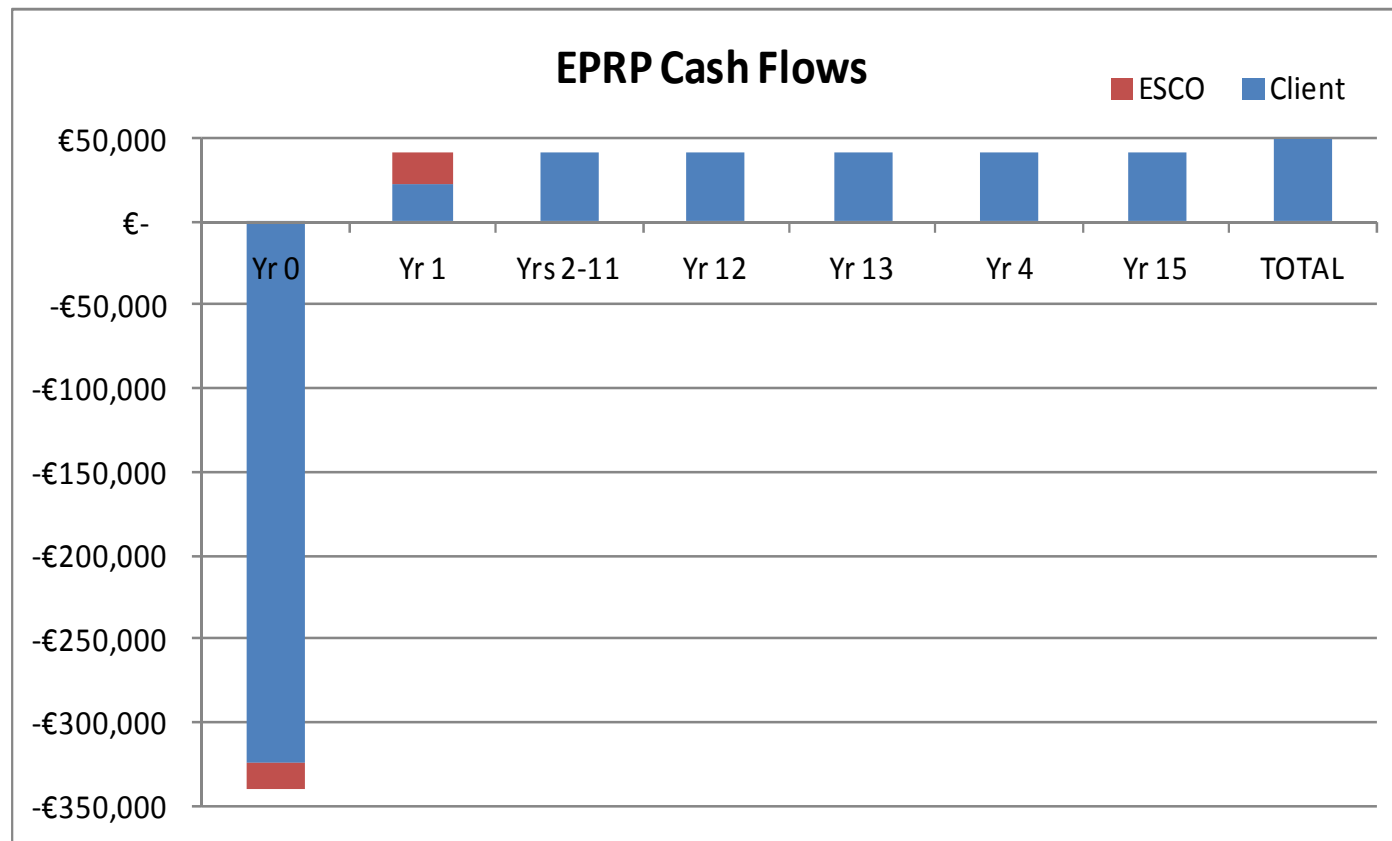


EPRP Model



EPRP Cash Flows

EPRP	Yr 0	Yr 1	Yrs 2-11	Yr 12	Yr 13	Yr 4	Yr 15	TOTAL
Client	-€ 324,000	€ 22,800	€ 42,000	€ 42,000	€ 42,000	€ 42,000	€ 42,000	€ 286,800
ESCO	-€ 16,000	€ 19,200	€ -	€ -	€ -	€ -	€ -	€ 3,200
Overall Project	-€ 340,000	€ 42,000	€ 42,000	€ 42,000	€ 42,000	€ 42,000	€ 42,000	€ 290,000



Local Energy Supply Contracts

- Supply electricity, heat, hot water
- Agreed price per unit of energy
- ESCO may finance works
- 'ESCO' not concerned with efficient energy use
- Examples: CHP; biomass heat; solar hot water