

Energy Performance Contracting EPC



LEHR - Successful Engineering Solutions

What is Energy Performance Contracting ?
EPC?

When a company is engaged to improve the
Energy efficiency of a facility
With **guaranteed** energy savings
Paying for the capital invested

EG: \$1mil spent which saves say \$200k a year of energy
Paysback over 5 years

Under a performance contract

A company **examines** a facility,
evaluates the level of energy savings that could be achieved
and then

Offers to implement the **project** and

Guarantee those savings over an agreed term

What?

Is this how I can get monies to upgrade my hospital plant and infrastructure and use the savings to pay for the upgrades!

Yes!

Who provides the money?

In Victoria – There is No Agreed funding Mechanism

Government - DHS or DTF in Victoria – TBC

USA & UK the companies themselves provide the capital

Who takes the risk?

A company ESCO has to guarantee the payback!

Drivers?

- I have had 8 CEO's in 13 years!
- My maintenance budget is being cut!
- My infrastructure is at the end of its life!
- My KPI & Bonus is related to how much I can save!
- The energy bill is only 3- 6% of the CEO's bill- What 15% of 3%? Its not enough for the CEO to take seriously!
- **EPC??**
- Hey ! Here is a way I can use to upgrade the plant & infrastructure & meet the energy targets as laid down by the governments & get capital investment to make this a better place!

Why are Governments doing this?

- **Governments world wide are setting new energy and benchmarks.**
- **DHS 15 – 20% energy reduction**
- **Clinton Climate Initiative MOU**
- **Carbon trading**
- **People have spoken!**

What's the Process?

- **Speak to DHS**
- **Expression of Interest**
- **Detailed Facility Study**
- **EPC Contract.**

Process

- q Homework**
- q EOI**
- q 2 Stage Tendering Process**
- q Call Tenders**
- q Shortlist**
- q Call Detailed Feasibility Study**
- q RFP - Request for pricing**

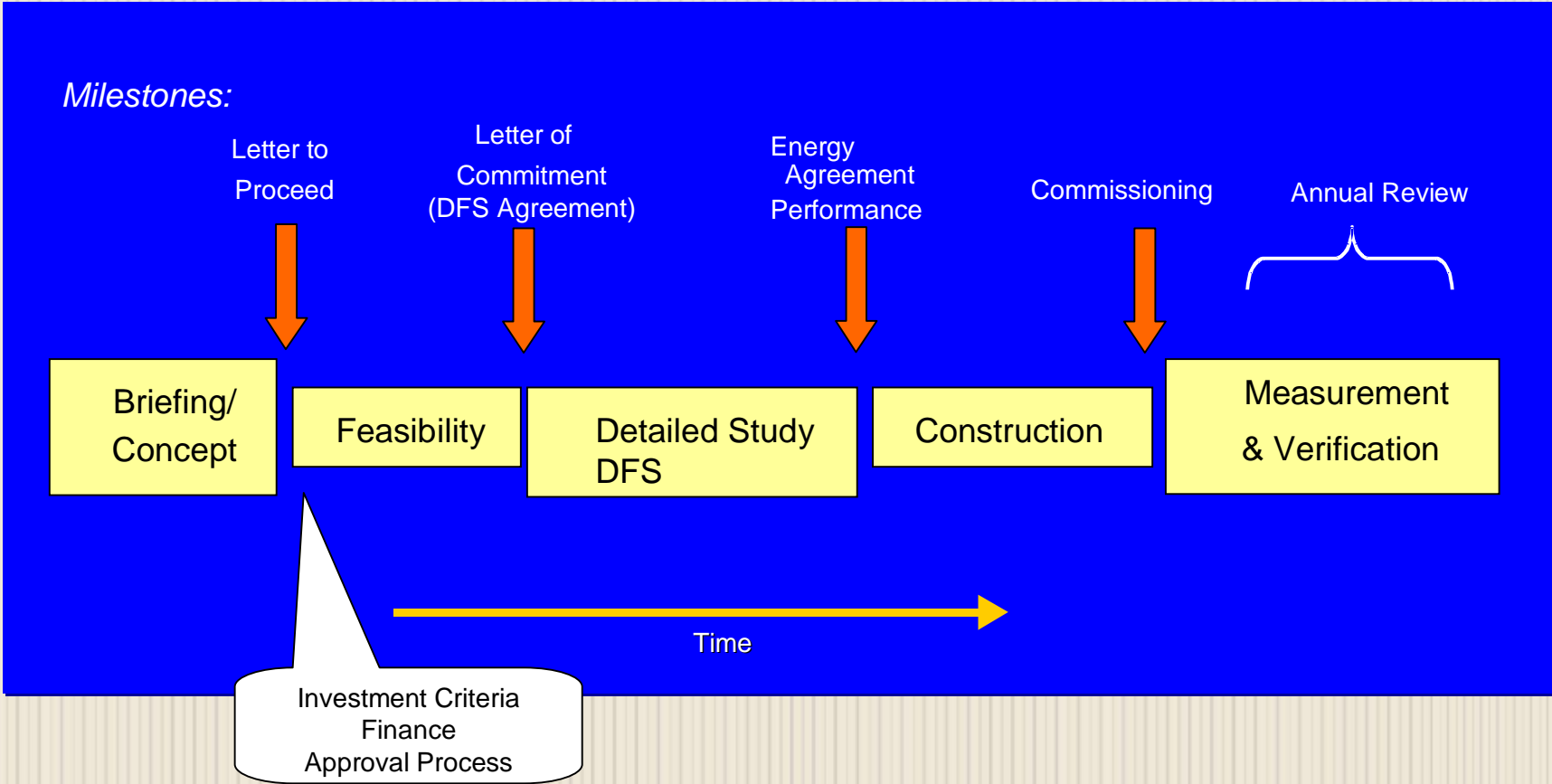
– Time 4 – 8 Months

Process

Table 1: tasks involved in reaching award of EPC stage

Task	Party responsible	Timeframe
1. Issue public call for EOI	Customer	total timeframe for tasks 1, 2 and 3 is about three weeks
2. Prepare EOI documentation	Customer	
3. Issue EOI documentation to all qualifying respondents	Customer	
4. Prepare EOI responses/ prepare RFP documentation	ESCO/Customer	2 weeks
5. Complete EOI evaluation and select short list	Customer	total timeframe for tasks 5 and 6 is about one week
6. Issue RFP documentation to selected proponents, maximum of four	Customer	4 to 6 weeks
7. Prepare RFP proposals/ prepare DFS documentation	ESCO/Customer	
8. Complete RFP evaluation/ select Preferred Proponent	Customer	total timeframe for tasks 8 and 9 is about two weeks
9. Issue DFS documentation	Customer	4 to 12 weeks
10. Prepare DFS proposal	Preferred Proponent	
11. Contract negotiation	Customer/Preferred Proponent	varies
12. Award contract	Customer	

Solutions Process



What are the examples of the upgrades? Or the Energy Conservation Measures? ECM?

- **Electrical**
- **Mechanical**
- **Water**

ECM

- **Lighting Retrofits**
- **Power factor correction**
- **Pumps – replacement/control**
- **Compressors – control/replacement**
- **Motors – control/upgrade**
- **Exhaust/Supply Fans - control**
- **Evaporative cooler control**
- **Mechanical services controls**
- **Air-conditioning strategies, Building Management System, Energy Management System**

ECM

- **Boilers – unattended/control/replace**
- **Lagging**
- **Variable speed drives**
- **Process cooling/heating**
- **Waste heat/cooling recovery**
- **Water minimisation/recovery**
- **Risk (Legionella) minimisation**

- Light – Luminaire Retrofit - Fluorescent
- Light – Luminaire Retrofit - Dichroic
- Light – Luminaire Replacement – Fluorescent Battens
- Light – Fixed Level Dimming

■ Mech – Upgrade to High Efficiency Motors

■ Mech – Toilet Exhaust Rebalance

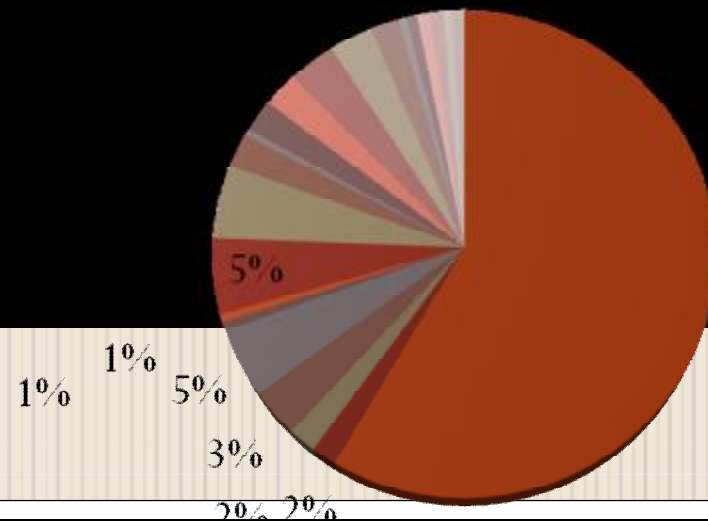
■ Mech – Tower Block Floor Isolation

■ Mech – CO Controlled Car Park Ventilation

■ Mech – Install VSD on 24hrs exhaust fans

■ Mech – Afterhours temperature setback

■ Mech – Dead Band Optimisation



A Best Practice Guide to Energy Performance Contracts

reducing operating costs through guaranteed outcomes

Produced by:
**The Australasian Energy Performance Contracting Association for the
Energy Efficiency Best Practice Program in the
Australian Department of Industry Science and Resources**



Who supports this & Help

- **Australian Energy Performance Contracting Australia**
- **AEPCA is the industry association for Energy Performance Contracting in Australia. It was established in May 1999 to act as the single voice of the industry**
- **<http://energyperformancecontracting.org/>**
- **NSW, WA ahead – over 45 cases projects**
- **International Performance Measurement and Verification Protocols**
- **<http://www.ipmvp.org->**
- **<http://www.aepca.asn.au/>**



AEPCA members

- Hospitals 12 worth \$22 million**
- Offices 18 worth \$7.2 million**
- Education 2 worth \$7.4 million**
- Councils 5 worth \$5.8 million**
- 18 Retail, Defence, Industrial, Clubs worth \$6.1 million**



Measurement & Verification

How Can I be sure I am really saving Money?

Energy Saving =

Base Year Energy Use

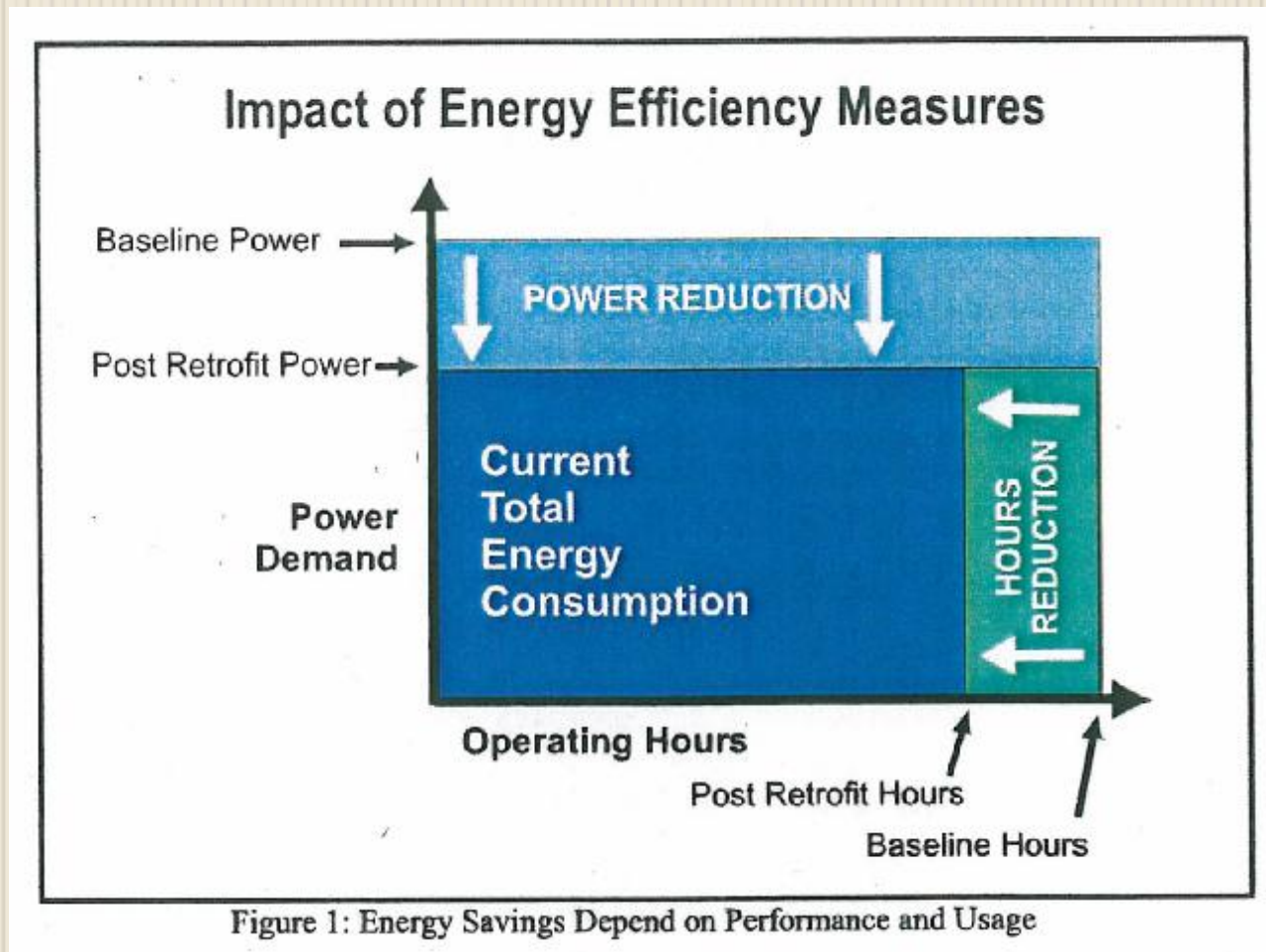
- Post Retrofit Energy Use

+ or - Adjustments

Adjustments

- hours of operation**
- Area**
- Weather differences**
- Loads**

Energy Saving = Base Year Energy Use - Post Retrofit Energy Use
+ or - Adjustments



Measurements Options

- **4 Options - A,B,C,D**
- **2 Categories**
- **A+B Isolation Retrofit approach (Fixed Asset)**
 - A Lights**
 - B Variable Speed drives**
- **C+D Whole Building Approach (Variable Asset)**
 - C Energy bills before & after ECM**
 - D Computer Simulation**

THIRD Party Verification!!

Define the Baseline

- Define Base Line
- Develop Specific Measurement & Verification Plan
- Post Install Verification
- Period Performance Verification

The devil is in this detail!

Evaluation

- Use **Internal Rate of Return, not Payback**
- **IRR benefits**
 - o **Time value of money**
 - o **All savings/costs included**
 - o **Variable cash flows allowed for**
- Use **common spreadsheet for comparisons**

Acronyms!

- q **ESCO - Energy Services Company**
- q **ECM - Energy Conservation Measure**
- q **EOI - Expression of Interest**
- q **RFP - Request for Proposal**
- q **DFS - Detailed Facility Study**
- q **IRR - Internal Rate of Return**
- q **M&V - Measurement and Verification**
- q **Facilitator - External specialist to assist Customer with procurement**

Risks

- **Relatively New to Victoria**
- **Victoria – who pays ?**
- **Personnel Change over 5 years**
- **Measurement and Verification**
- **Agenda & Drivers – understand**

Recommendations / Guide

- **Use the AEPKA Guidelines.**
- **Constant communication with ESCO.**
- **Need to spend \$1mil dollars to save \$200k**
- **Cost of DFS \$80 - \$100k ESCO Pays if goes ahead
Agency pays DFS if it does not**
- **Web Sites**

<http://energyperformancecontracting.org/>

<http://www.ipmvp.org->

<http://www.aepca.asn.au/>

Future

- **ESCO fronts with the capital!**
- **Victorian Government to sort out who pays**
 - **DHS, DTF**
- **Is the DFS to be paid by the agencies? Can we go forward?**

Players

- AG Coombs
- AGL Energy Sales & Marketing
- Conway Leather Shaw - Solicitors
- Energetics Pty Ltd
- Energex
- Energy Conservation Systems Pty Ltd
- Energy Decisions Pty Ltd
- Ergon Energy
- Honeywell Limited
- Origin Energy
- Robert Turner Consulting Pty Ltd
- Sustainable Energy Development Authority
- Sustainable Energy Authority Victoria
- Siemens Building Technologies Pty Ltd
- SSL Asset Services Pty Ltd
- Tarong Energy Corporation Ltd
- Thomas Clarke (Australia) Pty Ltd
- TRANE Australia
- Yves Lemoine Consulting Pty Ltd

Lehr Consultants International -Profile

- q Started operations in 1969 NY**
- q Special Projects – Quality Staff & Expertise**
- q Melbourne Office Started in March 2007, Brisbane 2008**
- q 120 Plus Selected Staff Internationally**
- q Melbourne office with affiliated fire and Hydraulics 38**
- q Business Plan to expand to all Key States in Australia**
- q Specialist Projects Procured through relationships**
- q A true specialist international consultants**

