

Environment
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Interface
Limited

**Challenges in Getting
Credible Energy Savings
Reports
and Converting Them to
Emission Reduction
Reports**

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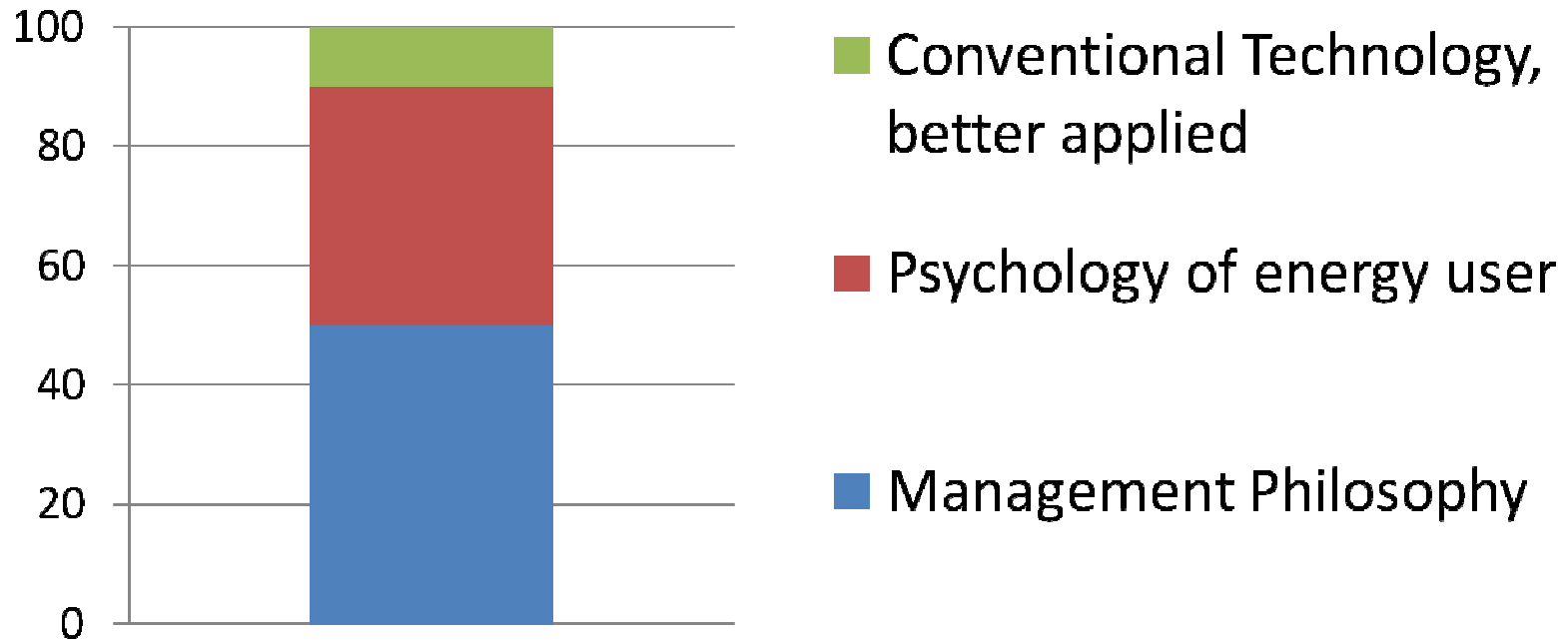
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- 36 years in energy efficiency for buildings and industry
- Engineer, then ESCO, now management consultant
- Savings verification specialist, expert witness, trainer, certifier
- EE and emission trade verification
- Chair Efficiency Valuation Organization (IPMVP)

Summary

- The EE industry routinely makes financial transactions based on savings.
- The EE Industry has protocols and verifiers.
- Challenges on the EE/Carbon interface.
- Suggestions for all players in the Market.

Energy Efficiency Is Not Rocket Science



- Re-think how energy is used.
- Learn new ways to operate and manage.

Barriers To Energy Savings

“Joe the plumber says we are efficient.”

“Its more than a 1 year payback.”

“I don’t have the capital.”

“I’m from Missouri – show me.”

Barriers are broken by **Experience**,
Trust and **Proof** from:

- Energy Service Companies (ESCOs) – experience, turnkey, financed, guaranteed savings/payback
- Utility EE programs – trust, grants
- Savings measurement protocol - proof



Carbon Community's Wish



Capital
Intensive
e
Projects
=



CO₂ Intensive Transactions

EE Community's Reality



- Labour Intensive
- Small and diffuse

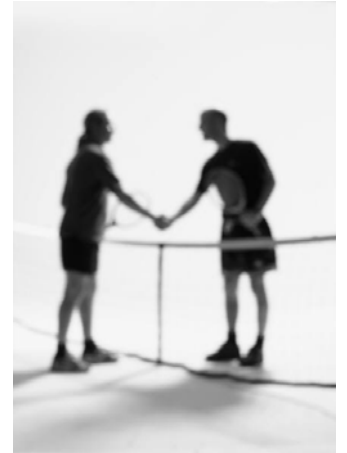
Challenge: EE Is Diffuse

- **Every** energy user has opportunities to save.
- **Savings per site are small** in CO₂ terms
(eg. even a major EE project in a major hospital may only earn of the order of 20 kt CO₂/yr.)
- **Growing** potential:
 - Better ways to run systems are being learned all the time
 - New equipment is getting more efficient all the time
 - Buildings now target “Net Zero” energy use

➤ **Massive** opportunity for carbon buyers to

Challenge: “Real” Carbon Reductions

- The EE community knows how to make and demonstrate Real energy reductions, **to itself**.
- The EE and Carbon communities need to learn how to demonstrate tradable emission reductions, **to each other**.



This is a Measuring and Reporting Task

'Measuring' Energy Savings



You can't measure savings!



But, with the help of
Sherlock Holmes,
thousands of people make
successful financial
transactions based on
'measured' energy
savings every day!

Energy Savings 'Measurement' Techniques

- Lab test of a piece of equipment – assume it applies to the project
- Field test of a valid sample of (small) equipment or retrofits – assume it applies to the project
- Site tests for the particular retrofit project
- Assessment of savings at the whole facility level
- Wide area program evaluation, based on sampling of individual results or deemed

'Measurement' Considerations

- Are targeted savings likely?
- Will savings last?
- How accurate and/or conservative?
- How much to spend on 'M&V?'

❖ Each project is **DIFEEERENT**.

Measurement issues are **routinely** balanced by project designers and facility owners or utilities.

A Common Protocol

The International Performance Measurement and Verification Protocol - supports claims of “real” energy savings at individual sites.
(ASHRAE has one too.)

- 12 years old, widely referenced around the globe, specified for many public applications.

- Maintained by the non-profit Efficiency Valuation Organization (www.evo-world.org) which also:

- **Certifies** designers and verifiers of savings measurements (“CMVPs”) - since 2001
- Creates access to the body of literature and a peer support network on the arts and sciences of

Bottom Line

**Energy savings are often delivered
C.O.D.**



Just like Carbon

Transforming energy savings to tradable carbon
needs Actions by:

- GHG Program Designers
- Energy Users
- Carbon Marketers
- Carbon Buyers

GHG Program Designer Actions

1. Set minimum quality or accuracy specs.
2. Decide how much of the “additionality” concept to apply.
3. Set rules to avoid double counting. (Did ratepayers expropriate some or all of the energy user’s title to environmental benefits?)
4. Decide how much life cycle analysis to include for off-site effects of lower site energy use (T&D losses, resource conversion).
5. Set emission factors for grid supplied electricity – mapped to the project’s savings pattern.

The Single EE ‘Methodology’

- Treat all EE under one measurement and reporting ‘**Methodology**’

(not one for each of the million different ways of savings)

- The **Methodology** of measuring and reporting carbon reductions is found in **IPMVP**, **NAPEE** and **ISO 14064**. They apply to all technologies (large, small, electric, fuel, insulation, controls.....)

See also www.ghgs.com, soon, for a blend of these protocols.

- Verify reported results.

Verification is normal in the carbon world. EE verifiers

Energy User Actions

1. Learn to exclude “non-additional” savings.
2. Expect possibly increased M&V costs due to buyer or program rules about:
 - Transparency and possibly extra verification
 - Accuracy (maybe)
 - Longer reporting periods – not just one time proof
 - Warranty of delivery
 - Protracted and unfamiliar negotiations

BUT

New Carbon revenue >> Increased costs

Carbon Marketer Actions

1. Use natural aggregators.

ESCOs, utilities

2. Educate aggregators and hosts.

(or piggyback on equipment suppliers' transactions)

3. Aggregate projects with the same measurement style and accuracy.

(for ease of market valuation)

Carbon Buyer Actions

1. Recognize that EE is Real.

Proven savings are bought by financiers, utilities and governments around the world. Verifiers already exist.

2. Understand that EE project risk can be low, since it is not rocket science.

Buyers must still use due diligence and portfolio diversification.

(International EE Financing Protocol will soon define EE due diligence for financiers at www.evo-world.org.)

Fungible CO₂ from EE?

Unlikely.

- Some EE projects/programs may be top notch accuracy, while others may only barely pass the rigour requirements (even after structured reporting and verification)
- The **Buyer** will value the carbon after reading transparent reports which are verified to follow recognized protocol.

Summary

1. The EE world is diffuse and complex.
2. The EE world is used to arms length transactions of “real” savings based on measured results.
3. There are standard EE measurement and reporting protocols and verifiers - to help nervous carbon buyers.
4. GHG program designers should adopt one EE Methodology for measuring, reporting and verifying. Let the market decide quality.

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