Financial Sustainability
“Can Ports Be Green in a Recession?”
John D. Pauling, P.E., BCEE

Harbors, Navigation and Environment Seminar & GreenPort Americas 2010
Charleston, SC – May 4, 2010
Overview of Financial Aspects of Sustainability
A means of configuring human activity so that society, its members, and its economies are able to meet their needs and express their greatest potential, while preserving biodiversity and natural ecosystems in the very long term.

- Easily put...
- Sustainability is about thinking and acting in the future tense.
- (Planning for the Future)
The leader business spectrum

**Beginner**
- Understanding of key CR issues
- Compliance systems in place

**Performer**
- Senior-level buy-in
- Vision of sustainable future
- Systems in place to delivery

**Leader**
- CR a strategic opportunity
- Sustainable innovation across business

**Pioneer**
- Business model refocused to profit from sustainable value creation
Making the Business Case for Sustainability
How Sustainability Creates Value

1. Create value
   - Activity
   - Initiative
   - Decision

2. Identify material contribution to drivers of:
   - Turnover growth
   - Margin growth
   - Reduce capital expenditure
   - Risk reduction
   - Duration of competitive advantage
   - Reduced cash tax rate
   - Reduced cost of capital

3. Calculate specific financial contributions
   - Calculations for the material contributions to value

4. Combine to give addition to value
   - Additional value
## Financial Drivers

<table>
<thead>
<tr>
<th>Category</th>
<th>Benefits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reduce capital expenditure</td>
<td>• Avoiding unnecessary demand for fixed assets</td>
</tr>
<tr>
<td>Duration of competitive advantage</td>
<td>• Shaping the market to the company’s advantage</td>
</tr>
<tr>
<td></td>
<td>• Attracting people</td>
</tr>
<tr>
<td></td>
<td>• Prompt action on emerging strategic issue</td>
</tr>
<tr>
<td></td>
<td>• Enhanced access to key resources</td>
</tr>
<tr>
<td>Reduce cash tax rate</td>
<td>• Reduced payments to government</td>
</tr>
<tr>
<td>Reduced cost of capital</td>
<td>• Improved access to financial capital at lower rates</td>
</tr>
</tbody>
</table>
## Financial Drivers

<table>
<thead>
<tr>
<th>Category</th>
<th>Benefits</th>
</tr>
</thead>
</table>
| Turnover growth         | • Product differentiation  
                          • New products  
                          • New customers / market share / reputation / brand equity 
                          • Innovation |
| Margin growth           | • Eco-efficiency  
                          • Motivating and retaining people |
| Risk reduction          | • Increased security and quality of supply chains  
                          • Reduce regulatory risk  
                          • Reduced reputation risk  
                          • Maintain license to operate |
## Why is the Business Case so Difficult?

<table>
<thead>
<tr>
<th>Challenge</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>There is no “one size fits all” business case</td>
<td>Only try to find your company’s business case</td>
</tr>
<tr>
<td>The “societal case” doesn’t automatically make a business case for all situations</td>
<td>Don’t expect a business case to exist for future things the company needs to do</td>
</tr>
<tr>
<td>People have led with “responsibility” which feels like compliance</td>
<td>Opportunity trumps responsibility: frame sustainability as a way of unlocking opportunity for the company now and in the long-term</td>
</tr>
<tr>
<td>The more you look, the more you find</td>
<td>Plan to explore how to make sustainability commercial, and how to keep improving your company’s business case</td>
</tr>
<tr>
<td>Sustainability and finance professionals speak different languages</td>
<td>Frame the case for sustainability in terms your finance director will understand, ideally in drivers of shareholder value</td>
</tr>
<tr>
<td>The “no business case, no permission” vicious cycle</td>
<td>Plan small steps to iteratively establish a process of permission and results</td>
</tr>
</tbody>
</table>
Delivering Profitable Sustainability

- Quantifying sustainability
- Informing, decision-making (DELTΔ)

Assessment

- Identifying opportunities
- Helping forge new directions - advanced solar thermal initiative

Delivery

- Embedding capabilities
- Delivering sustainable projects

Strategy
‘Anything non-financial eventually becomes financial’


Currently the global economy is accepting billions of dollars of risk annually purely due to a narrow, traditional, view of project and corporate risk.

Insurance is becoming less attractive or attainable for investors for certain types of risk. Knowledge and management is required.

External environmental and social costs could be tomorrow’s internal liabilities.
An EcoNomics™ Approach Case Study
An EcoNomics™ approach broadens the perspective (decision window) out to the future to consider factors beyond budget and schedule.

Projects are future-proofed
Monetizing External Costs, Benefits & Risks

- Trade-offs:
- Risk and Value: Cost and Benefit
An EcoNomics™ project alternatives assessment develops a comprehensive accounting of all benefit, cost, and risk by monetizing ALL influencing factors.

Key features:

- Analyzes both financial and non-financial costs, benefits, and risks through monetization.
- Process designed to support clients overall sustainability objectives.
- Built-in future-proofing so that client can see long-term effects of and to project options.
- Defensible results based on reliable, non-subjective methodologies and data input.
- Improved ability to communicate value of action to all stakeholders including regulators.
NPV = \sum_{0}^{t} \left[ \frac{(B_p + B_x) - (C_p + C_x)}{(1 + i)^t} \right]

P = project (internal)

x = society and environment (External)
Finding the Economic Optimum

- Business as Usual
- Enhanced Compliance
- Optimal Sustainability
- Zero Impact

Increasing Level of Action
The Sustainability Triad

- WATER
- CARBON
- ENERGY
Hierarchy of Assessment – Project Type

- What level of assessment is appropriate?
- Comparison of options at which level?
Assessment Process

Customer Input

ESIA
Eng. Cost Estimating

LCA
Risk Assessment
CBA
Sensitivity Analysis

DELTΔ

Report
Presentation
Decision Making Support
Communication

EcoNomics™ Framing Workshop
ENA Example 2: Former MGP Site Remediation
Conceptual Model

- Tar Tanks
- Residential Neighborhood
- NO HH RISK
- River
- PWS
- DNAPL
- Putty chalk (leaky)
- NO HH RISK
- Fractured chalk
What should I do at this site?
Most sustainable method of remediation and how much should I spend?

- Nature and extent of contamination
- Risk (Human Health, Controlled Waters, Resources, Environment, Property)
- Regulations
- Stakeholder views
What Could We Do?

Possible Objectives:

- Eliminate Human Health Risk
- Make site fit for redevelopment – Property Holder
- Protect the Public Water Supply (PWS) by preventing vertical migration – Water Utility
- Protect the River – Environment Agency
- Remediate the aquifer itself – Environment Agency

Which one is best??
Remedial Approach Options

- R1: Treat water at Public Water Supply Well (PWS)
- Monitored Natural Attenuation (MNA)
- P1: Hydraulic containment in bedrock *(Agency + WCo favored)*
- P2: Hydraulic containment in gravel
- P1 and P2
- S3: Excavation above WT, ex-situ treatment *(PH favored)*
- S1: Partial excavation + In-Situ Chemical Oxidation
- S2: Full excavation (with piling), ex-situ treatment *(Local Government favored)*
External Costs of Remediation

Intended Cx:
- GHG emissions during remediation
- External costs of road transport

Unintended Cx:
- Introduction of contaminant to bedrock via piling (putty chalk risk)
CAPEX: Role in Decision Making
<table>
<thead>
<tr>
<th>Benefit Category</th>
<th>20 Year Benefit ($m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property value increase</td>
<td>10.5</td>
</tr>
<tr>
<td>Neighborhood blight reduction</td>
<td>3.9 (77.5 x 5% BF)</td>
</tr>
<tr>
<td>Aquifer Protection</td>
<td>8.1</td>
</tr>
<tr>
<td>River Protection</td>
<td>2.8</td>
</tr>
<tr>
<td><strong>TOTAL (Maximum)</strong></td>
<td><strong>$ 25.3 m</strong></td>
</tr>
</tbody>
</table>
Sensitivity Analysis: DELTA\(\Delta\)-2

**Graph: NPV Cumulative Distribution**

- **R1**: Treat at PWS
- **P1+P2**: S3 - Exc basic
- **MNA**: S1 - Part Exc + SEAR
- **P2 - Hyd Contain BR**: P1 - Hyd Cont grvl
- **P1 - Hyd Cont grvl**: S2 - Full Exc

**Note:** The graph shows the NPV cumulative distribution for different scenarios. The arrow points to the 'Robust Optimal Solution.'
Conclusions
Sustainability does pay

“Most executives (57%) say that the benefits of pursuing sustainable practices outweighs the costs” …involves “a shift away from defensive behavior towards more active exploration of the opportunities sustainability can present”

Execution is problematic

“On a range of environmental and social outcomes less than 10% of respondents rated their efforts as outstanding on each, barring public relations”