

Can you not afford to take action on energy efficiency?



Energy Futures Conference Nov 2009

Parsons Brinckerhoff

- Now part of one of the largest integrated infrastructure and engineering group in the world (acquired by Balfour Beatty)
- Office in Bendigo
- Strategic consulting, Planning, Engineering & Program/construction Mgmt, for;
- Transportation, Power, Community development, Water and the Environment
- We typically design infrastructure for a 40yr+ life



Can you afford not to...?

- It all starts with the dunnyman...
- cf. the waste hierarchy & start with demand reduction – innovation is borne of constraints
 - ‘Negawatts’
 - Creative thinking e.g. Visy
 - Life-cycle, ‘upstream’ solutions based on systems thinking
- The solutions are often right under your nose

Some additional thoughts

- Electricity is too cheap (artificially so) & unlikely to stay this way for very long – look at Melbourne’s water response to ‘constraints’
- Get intentional – ‘backcast’ from the future we want to create, not the one we resign ourselves to be inevitable
- Natural Capitalism - could we ever see energy as a ‘service’?

Carbon stewardship

- Regional Australia has a huge opportunity in energy capture, carbon management and carbon abatement
 - C in soils – ‘Terra Preta’ (biochar)
 - Renewable energy – solar, solar thermal, geothermal, wind, bioenergy, micro-hydro
 - ‘Self-sustaining structures’
 - Biomaterials

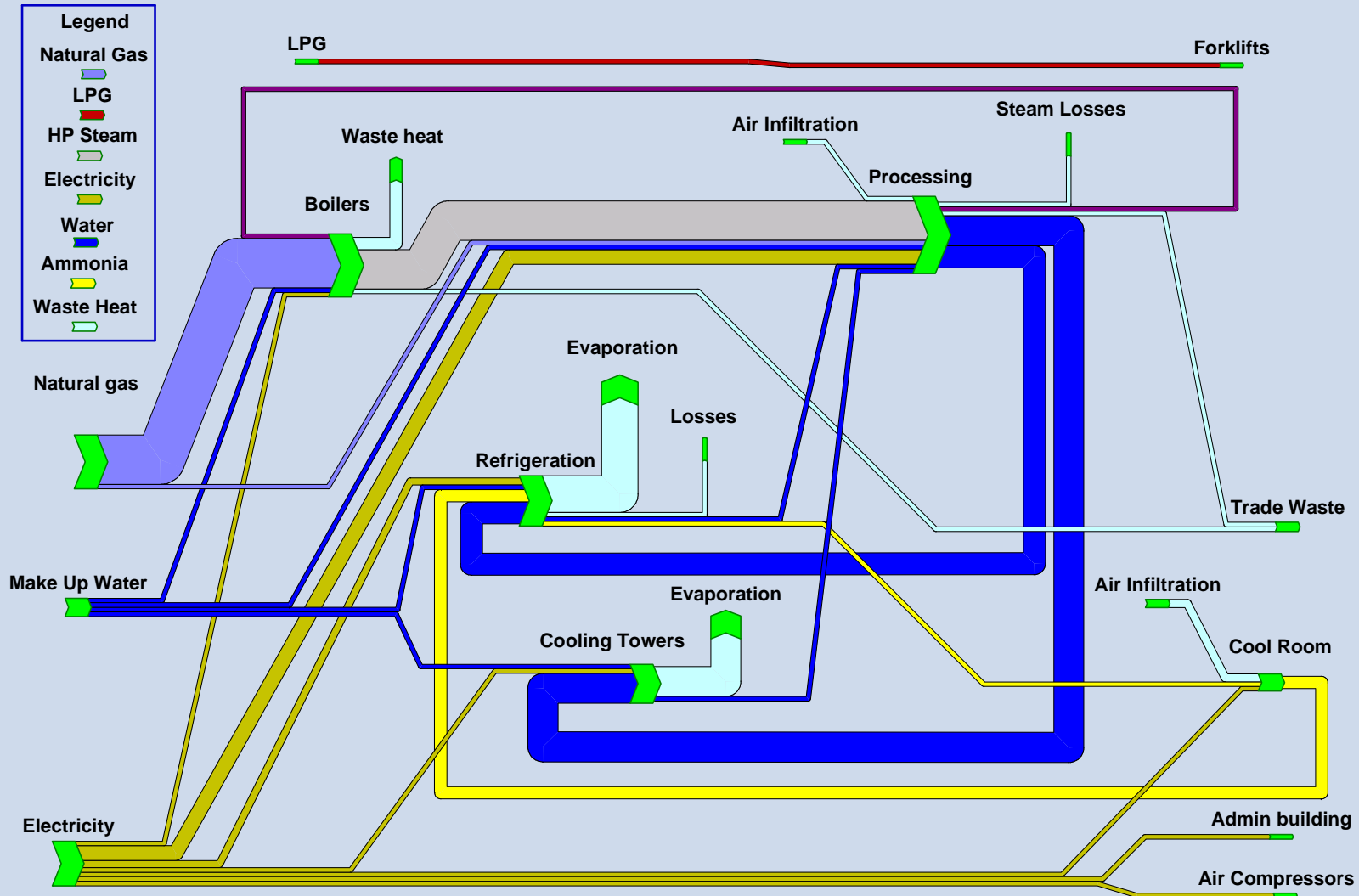
Case study

- Umea - city of approx. 110,000 in Sweden
- Biomass/municipal waste tri-generation plant
 - Total landfill reduced to <5% of BAU
 - District heating/cooling system (<1% loss in system)
 - Electricity
 - Internet!
- This way of thinking has taken the eq. of 2 x nuclear reactors out of the nations energy grid in 20yrs, whilst 'decoupling' of GDP & emissions growth has been emphatic

Case study

- GWF: carbon-constrained design exercise
 - 50kt/yr as baseline, with commercial incentive to reduce it – best & cheapest time to do it is during the design phase
 - Wastewater would normally flow 86km downhill for treatment elsewhere, but now it is treated and captured *on site* for local re-use
 - Biomimicry (design inspired by nature): leads to industrial ecology & resource efficiencies (energy) - APM

Numbers...lead to new insights

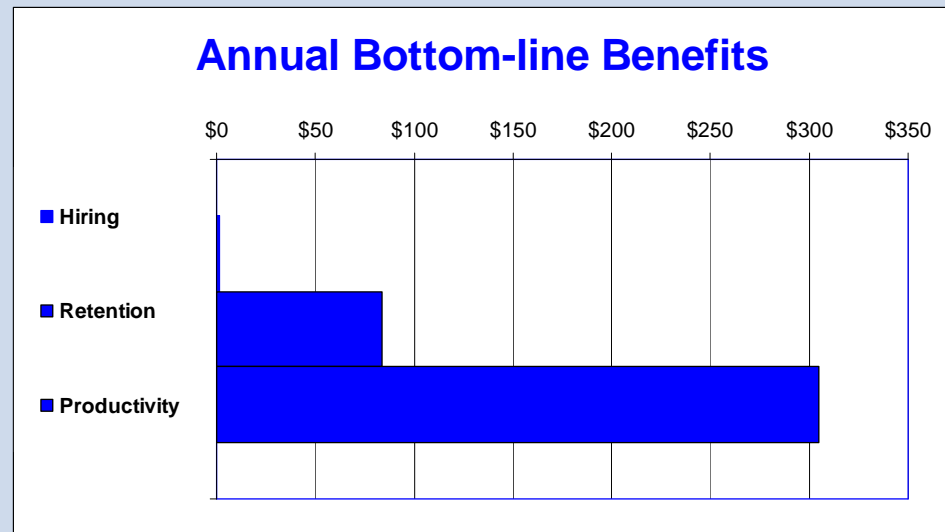


PB Office move: Build a business case

Over 12 years (7+5), the electricity price will double and a C price will be introduced - \$286K in savings combined

Total investment for a high performance office over BAU <3% of total project budget

- Revenue, no. employees, avg. salary, staff retention, productivity etc
- ‘HR’ soft benefit = \$390,000 p.a.
- *The Sustainability Advantage*
– Bob Willard



“The Stone Age didn’t end because we ran out of stones, rather because we found a better way of doing things.”

Opportunities for integration

Image courtesy of Maxim Renewables



Combination Vertical Axis Wind Turbine (VAWT) & LED Lighting towers



Bi-facial PV cells in a noise wall application

SMART Grids

- Transport (EV's) – smoothing out the peaks & troughs
- Inductive charging
- “way bigger than the internet”
- network incentives need to be better aligned

Ways to get started

- Do as nature does – bigger is not usually better
- Get a handle on ‘the numbers’ to get informed insights
- Identify your ‘sphere of influence’ + key value-chain partnerships
- Incentivise the right behaviour & utilisation
- Don’t design a project *without* a carbon constraint
- Work from the top of the waste hierarchy *down*
- Don’t let a ‘compliance’ mentality drive planning – get in ‘the smart zone’

Sustainability = Strategy + Innovation

- A systematic, practical and innovative process
- Starts by building consensus and strategic clarity around a desired future (vision)
- Addresses current realities
- Creates options and identifies opportunities for short, medium and long term outcomes
- Develops action plans and strategies to achieve viable businesses or projects with the ability to operate now and in the future

We have everything we need...but

- Capital
- Technical capacity
- Community support
- Desire to leave a positive legacy
- Ecological constraints forcing action
- Selfish market-based incentives

Can we find enough *leaders* in time?

e.g. Universeum

Thank you

