Doing Business the Carbon Literate Way

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The World’s First Eco-Friendly Gift Set

Gift Set Includes:
- Energy Saving Philips CFT Bulb
- 100% Recycled 360 Vodka Guide To Going Green
Brad Pitt’s eco-development in New Orleans
THE BIG PICTURE...
Greetings from Perth
- the Swan River Colony, home of the Black Swan
A black swan is something that cannot be predicted (the past will be no help to us as a guide to the future). Black Swans can be signs of fear or hope.

Nassim Nicholas Taleb
"The Black Swan: The Impact of the Highly Improbable."
The three unwanted Black Swans that could have been seen:

- Climate Change
- Peak Oil
- The Crash

And how we can respond in our cities....
Global Average Temperature at Earth's Surface (Land-Ocean Index), 1880-2003

Source: GISS

Degrees Celsius

1880 1900 1920 1940 1960 1980 2000

Source: GISS

www.worldwatch.org
Arctic sea ice extent 1978-2007
in millions of km²
(National Snow and Ice Data Center
Climate change threatens cities and regions.
“The costs of action to the global economy would be roughly 1 percent of GDP, while the costs of inaction could be from 5-20 percent of GDP...”

The Stern Review, 2006
DECOUPLING ECONOMIC GROWTH AND CARBON FOOTPRINT  Source: TNEP (2008)
Global governance seeks 80% less ghg by 2050...

- Copenhagen road map in December 2009.
- Europe is leading and US is now helping.
- Australia is trying to help.
- There *will be* a treaty to phase out fossil fuels...

- Investor confidence in fossil fuel energy ....
Where do we go?
Peak oil happened in 2008...

- Peak oil predicted for 30 years... led to crash.
- The age of cheap oil is over even without carbon caps...
Fig 2.3 How we use oil and natural gas & how this may change as they peak in production
The CRASH....
Fear abounds.... Are we RESILIENT?
Resilient City

• Building a new economy in our cities which is more resilient...
• Positive Black Swans have happened before as new economies were created out of cities where the old confidence was replaced with the new.
• The only city of hope.....
Waves of Innovation

1st wave
- Iron
- Water power
- Mechanisation
- Textiles
- Commerce

2nd wave
- Steam power
- Railroad
- Steel
- Cotton

3rd wave
- Electricity
- Chemicals
- Internal combustion engine

4th wave
- Petrochemicals
- Electronics
- Aviation
- Space

5th wave
- Sustainability
- Radical resource productivity
- Whole system design
- Biomimicry
- Green chemistry
- Industrial ecology
- Renewable energy
- Green nanotechnology

6th wave
- Digital Networks
- Biotechnology
- Software
- Information technology

© The Natural Edge Project 2004
Resilient City includes...

- Renewable Energy City
- Carbon Neutral City
- Distributed City
- Photosynthetic City
- Eco-Efficient City
- Place-Based City
- Sustainable Transport City

All combine the digital, smart technologies with the new technologies of sustainability.
Renewable Energy City

North Terrace Solar Precinct

Creating a Sustainable Adelaide

Adelaide Solar City
Masdar City – solar and wind only
Challenge
Stadium
Geothermal

Process for converting geothermal energy from hot dry rocks to electricity.
CETO
Wave
Power
PV Solar growing at 40% per year—tripled Perth’s PV in past 6 months
Roof mounted wind systems eg Windpods, exporting to China, made by a car parts manufacturer....
How do you store renewables?
CARBON NEUTRAL CITIES
Carbon neutral...

- Households... (eg Edwards)
- Football teams (eg Eagles)
- Royalty (eg Prince Charles)
- Air travel (anyone who wants to...)
- Any business eg News Corp...
How do you go CARBON NEUTRAL?

1. *Reduce fossil fuels* by a combination of behaviour change and new technology. **ESSENTIAL!**

2. *Add renewable electricity* (eg by Greenpower) *or renewables.*

3. *Capture the remaining CO2* – usually in trees (eg Men of the Trees or Greening Australia).
Carbon Offsets...
Bioregional connection, eg Greening Australia and Gondwana Links.
Carbon offsets from big companies like Shell and News Corp.
South Fremantle High School

- 1st Carbon neutral school...
- Unveiling the PV from a community partnership...
- Forging links with the bush...
Shutting down the urinals...
Sustainable Transport City

Electric renewable transport - for public and private transport.
ONE LANE -
people per hr:
Freeway 2,500
Busway 5000
LRT 10-20,000
Train 50,000

240 Persons travel
 to work:

-- in 177 Cars

-- in 3 Busses

-- in 1 Tram
Opening of new Southern Railway
90% approval ratings and already paid off.
Carrying 55,000 per day cf 14,000 on buses.
National and global model...
$17 mill per km.
Australian public transport is taking off...

- Perth led the way, Sydney falling behind the rest of Australia and comparable cities overseas in sustainable transport.
Nation Building package – 55% urban rail....historic! 

- Metro rail: $4,029 million
- Road: $2.441 million
- Port: $583 million
Public Transit Boardings and Vehicle Miles Travelled in US: March Quarter 2008 vs March Quarter 2007

- Bus: 1.3%
- Paratransit: 4.4%
- Comm Rail: 5.4%
- Heavy Rail: 3.4%
- Light Rail: 7.1%
- Total PT: 2.4%
- Car - VMT: -4.0%
The need to live or work near a transit system... Businesses and residents save 20%
Subiaco TOD – value of land increased 5 times cf to non-rail areas.
ELECTRIC VEHICLES
How to adapt to the other 50% of car use and move to 100% renewables - at the same time.

- V2G and PHEV with a Smart Grid...
- Better Place project.
Link renewables into a Smart Grid and store in electric vehicles (Li-Ion batteries)
Can now make 100% renewable city...
Two way flow with electric vehicles provides the breakthrough for a resilient renewably-powered grid.
Israel, Denmark and three Australian cities starting.

‘Renewable Transport’
www.sustainability.curtin.edu.au
North Port Quay - Perth Carbon-free development based on renewables, Smart Grid and electric vehicles.
EV Works – new EV businesses in WA

• Exporting retrofit technology to China... from Caves Road.
‘Global Green New Deal’

• UNEP report on how to green the economic stimulus packages...
• Green growth, green economy, clean tech....
Renewables Package

1. Renewables Australia $0.5b
2. Solar flagships $1.5b
3. 20% by 2020.
4. National grid to facilitate renewables
5. Smart grids to facilitate V2G (part of NEEI).
Household packages...

• **Living Smart**... 1 tonne ghg saved per home.

• **Green Loans**... 1 July 2009 starts, interest free loan of $10,000 after home audit is completed.

• **Feed-in tariff**...
Business Packages...

- All changing July 1st....
- www.climatechange.gov.au
Who will lose?

• Cities and businesses with the most coal as their base electricity supply.
• Cities and businesses which are the most car and oil dependent.
• Cities and businesses that think this will all go away...
Who will win?

• Cities and businesses that lead in decarbonising their operations.
• Cities and businesses that start to make renewable, carbon neutral and sustainable transport experiments.
• Cities and businesses that generate hope.

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