Regional Planning for Transport Energy & the Economy

Archer Davis
BSc (UK); GDE (RSA); MBA (RSA)

Group Manager Transport Strategy & Planning
Northshore City

The Problem with Planning …..

- Planning would be easy –

if it did not involve the future

- "Forward Planning" or
- "Backwards Planning"

- "Rear-view Mirror Navigation"

- Long lead times: Busway 15 yrs
- Other "Wedges" for Delivery or Changed Behaviour

- So How to handle a Discontinuity like Peak Oil ?

The Challenge for Planners

1. **Credibility of "End of Easy Oil" Concept & The Implications**

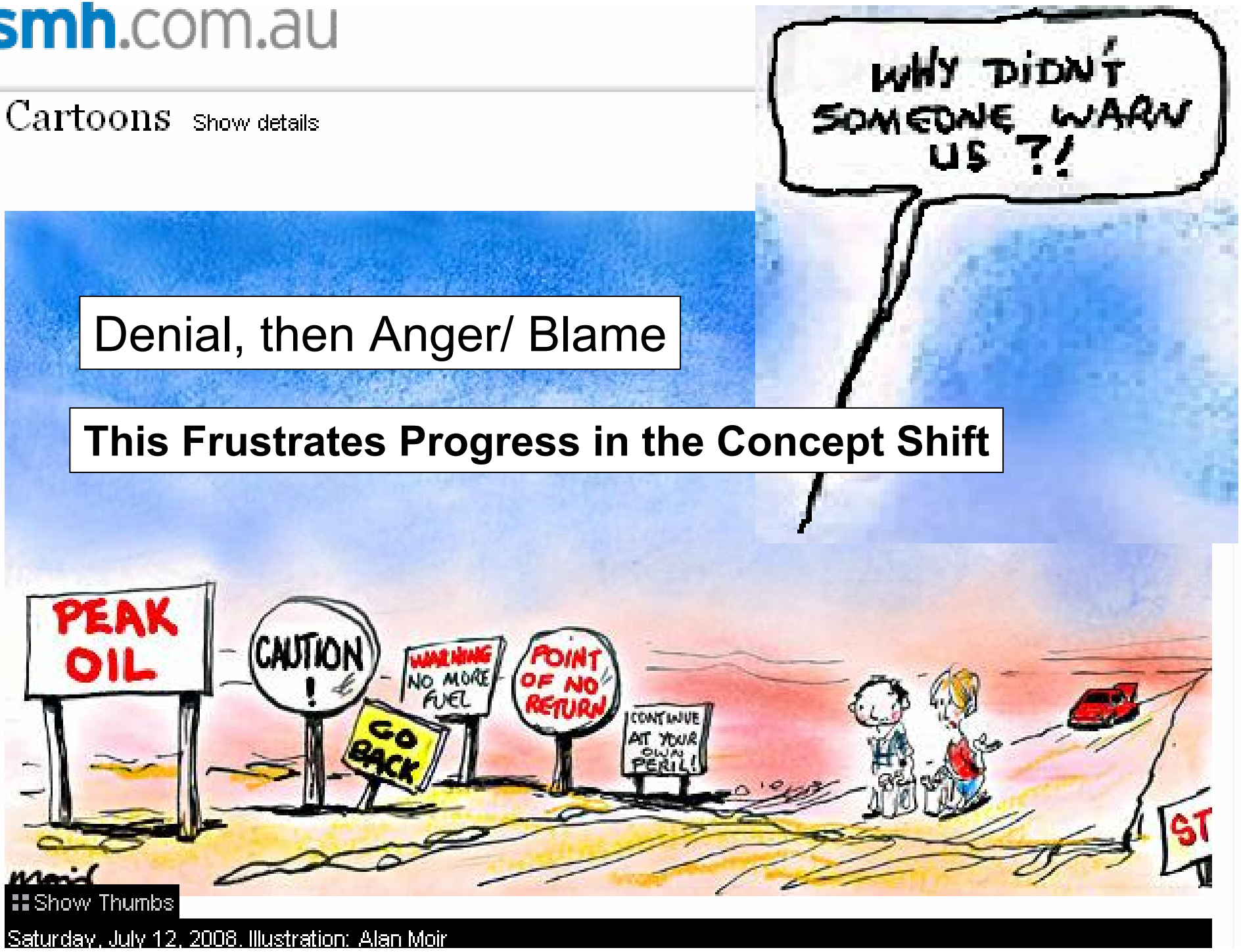
2. **Mourning cycle before Concept Acceptance**
   - **Blocking out the Threat to "Way of Life"**
   - **Denial, Anger, Bargaining, Depression, ….**
   - **Must Complete the Cycle to Enable "Moving On"**

3. **Moving On - Shifts in Planning Concepts**
   - **Short Shock vs Permanent Oil Descent**
   - **Congestion Priority vs Efficiency & Avoidance**
   - **Freemarket vs Conditional Availability**

4. **Economic Issues**

smh.com.au

Cartoons Show details



Denial, then Anger/ Blame

This Frustrates Progress in the Concept Shift

Show Thumbs

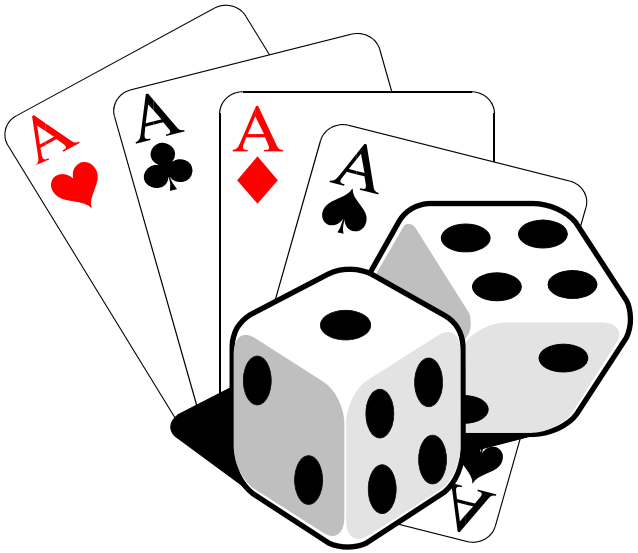
Saturday, July 12, 2008. Illustration: Alan Moir

#1 Concept Shift: Short Shock to Oil Descent

Short Shock - The "Above Ground Peak"

- Industry Conventional view
- Bumpy Plateau supply shape
- Can be solved, if only ……
- Demand Driven Price Bubble

(could fall & return to "Normal")

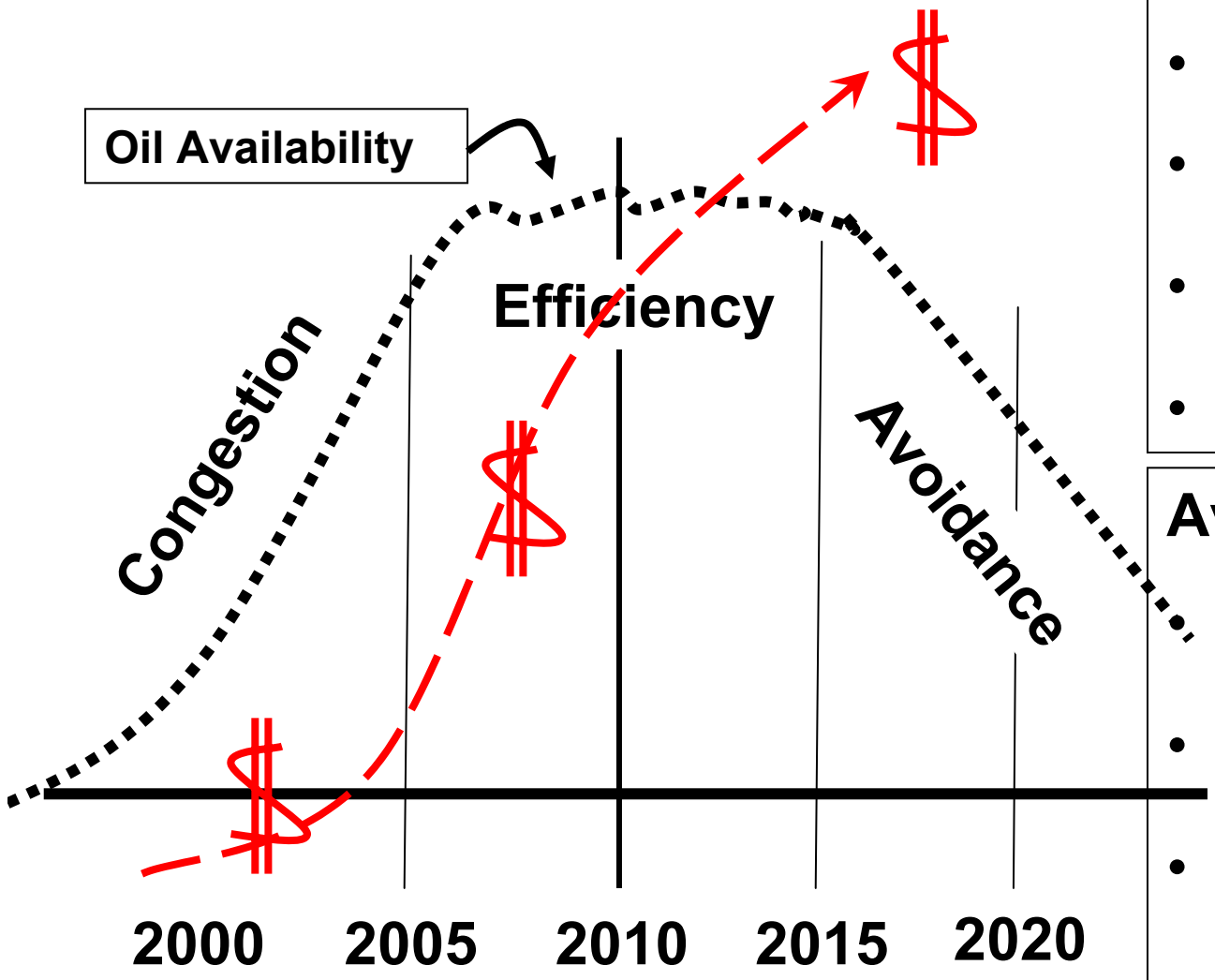


- Followed by: …….

Oil Descent – The "Below Ground Peak"

- Already - Soon; - 2015; - 2020;
- Peak; Plateau; "Whatever ! – It's down"
- Permanent Decline for Liquid Fuels
- Minimum Descent 4% pa
- Decline Accelerating to 8% pa

#2 Concept Shift: Congestion Priority to……..



Efficiency ?

- Less Congestion
- Small/Hybrid Cars
- Higher density
- Mass Transit

Avoidance ?

- BEV, Alt Tech ?
- Less Travel
- Substitution
- Localisation

#3 Concept Shift: Freemarket to……..

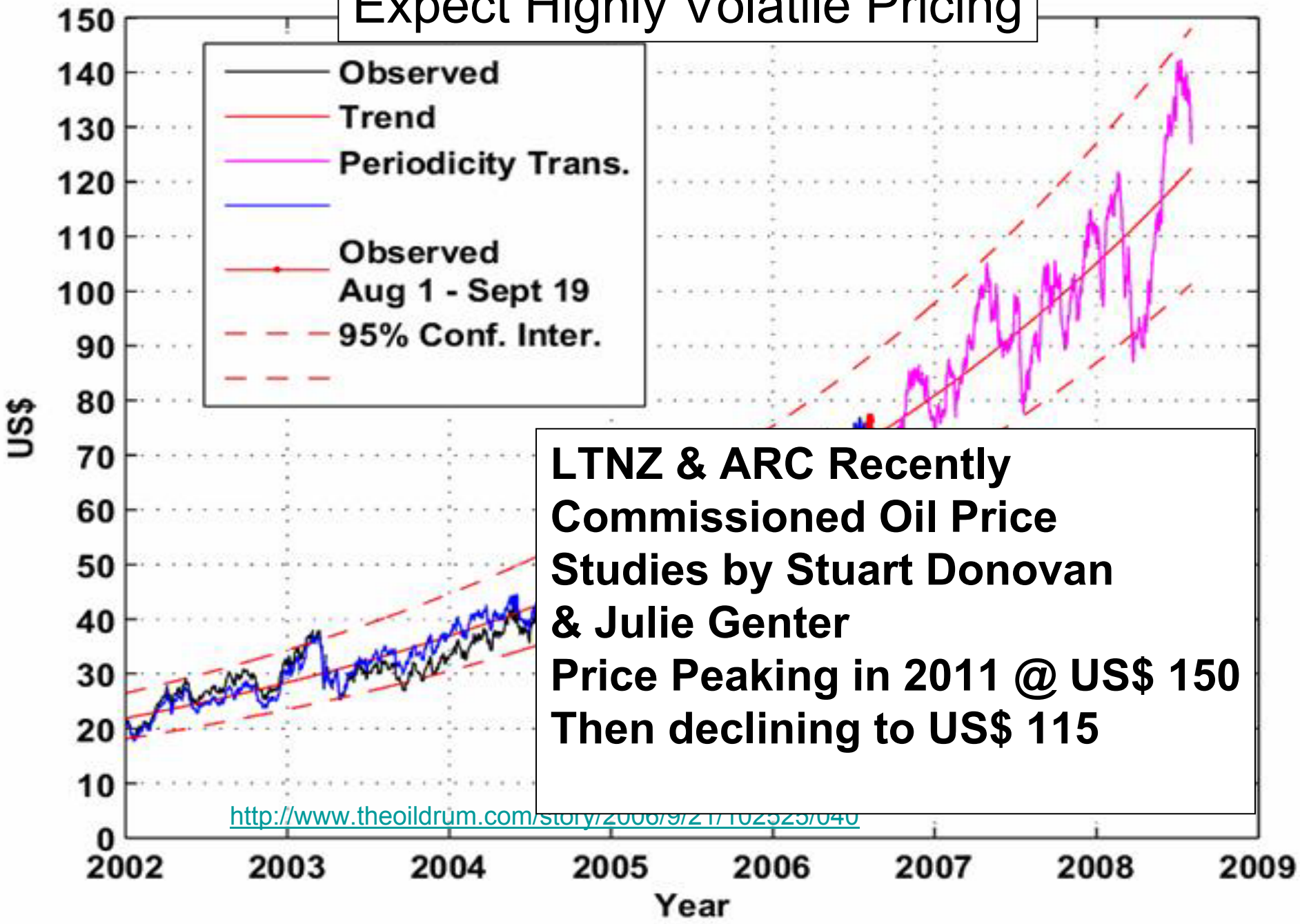
Freemarket Trade

- Free Global Oil Trade Continues Based on Price
- As Price Rises
  - Demand Progressively Destroyed
  - Encourages Supply from Higher Cost & Riskier Sources
- Benefit to Rich People, Rich Countries, Efficient Use

Conditional Trade - Restricted Availability

- More Trade Based on Bi-lateral Trade Agreements
  - Govt-Govt Cash or Barter Deals
  - Stable Prices But Priority to the "Strong"
  - Demand by "Weak" Countries Throttled

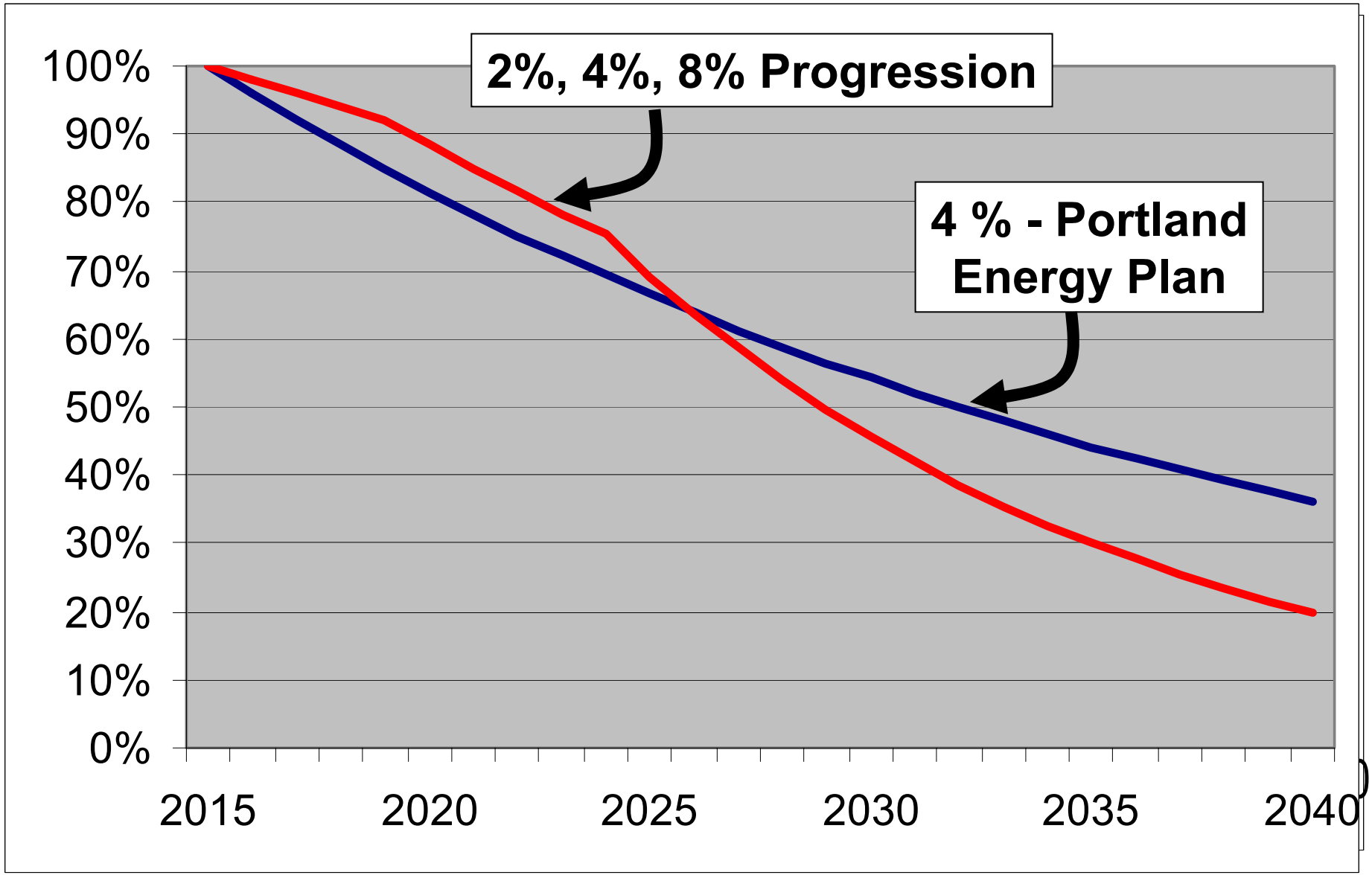
Expect Highly Volatile Pricing



LTNZ & ARC Recently Commissioned Oil Price Studies by Stuart Donovan & Julie Genter
Price Peaking in 2011 @ US$ 150
Then declining to US$ 115

http://www.theoildrum.com/story/2006/9/21/102525/040

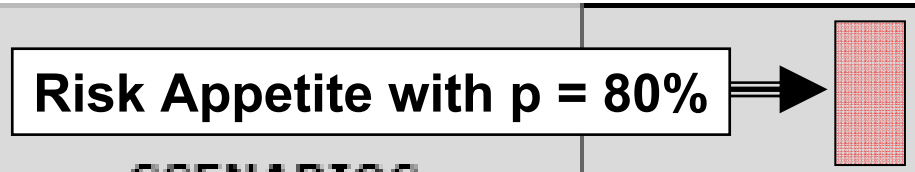
Some Oil Descent Scenarios



Conditional Oil Trade – Means Volume Redux

Probability Approach to Energy Descent (Optimistic)

IEA Statutory Reduction Levels (Dantas, Krumdieck)



SCENARIOS	2005	2010	2015	2020	2025	2030
Peak Production	0%	37.8%	79.2%	94.9%	99.0%	100%
7% Voluntary Reduction	0%	3.5%	52.4%	88.4%	98.1%	99.7%
10% Ration Reduction	0%	0%	29.4%	78.1%	95.9%	99.4%
15% Ration Regulated Reduction	0%	0%	1.5%	46.1%	86.0%	97.6%
20% Ration Enforced Reduction	0%	0%	0%	7.3%	59.3%	90.7%

Oil Depletion Protocol

As drafted by Dr. Colin J. Campbell*

One Strategy for Energy Descent
An Internationally Agreed Rate of Reduction

TEQs Tradeable Energy Quotas

- It's like a rationing system, but it's tradeable
- Introduces an economic value other than the price
- Recognises the power of the "grey market"
- The individual sets his own economic value relative to the need for cash or the fuel
- Fuel Retail Management System (Susan Krumdieck)
- Can be used for Energy descent and carbon descent

The Economic Scene……..

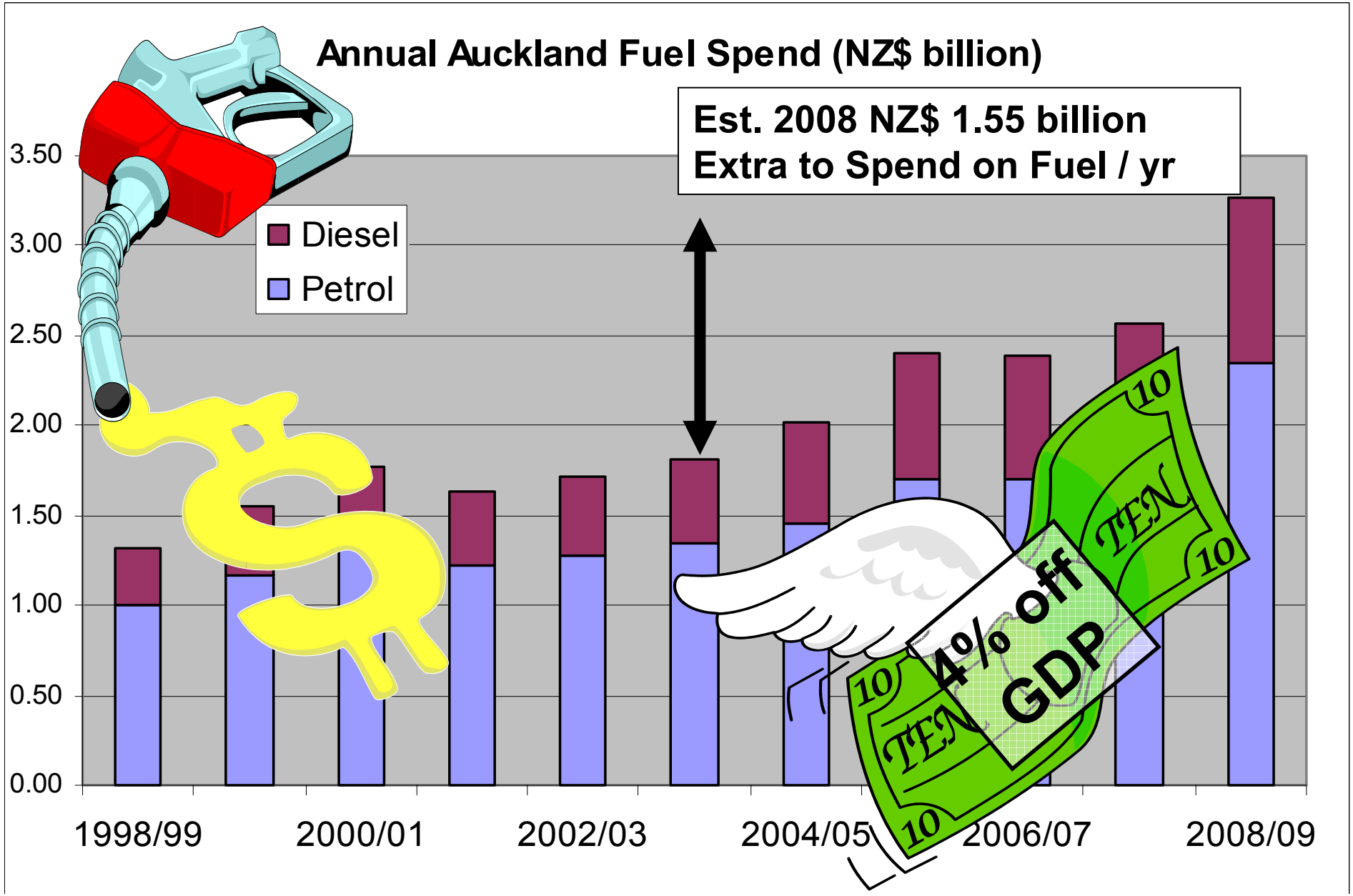
- **Mainly Sunny Economic Weather for OECD With few Storms Since WW2**

- **Climax of the period**
  - **The Naughties to 2005 - but NICE**
  - **Non Inflationary Continuous Expansion**

- **Hidden subsidy for all this – Cheap & Easy Oil**

- **What Happens When "Cheap Oil Subsidy" Ends ??**

Sliding Discretionary Spend



aviour Change ?

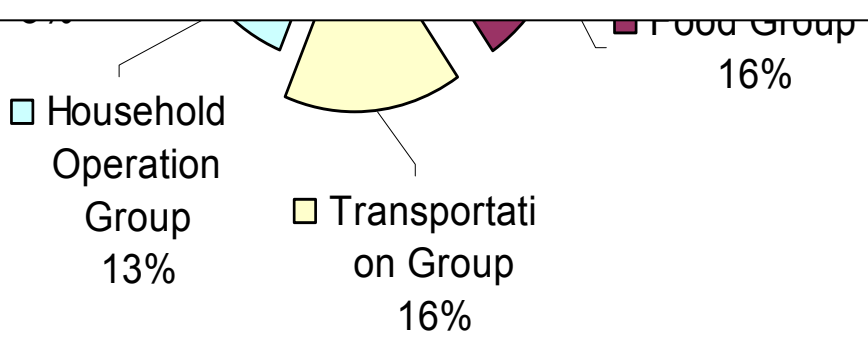
Household Stats 2007

Category Changes Makes Data Hard to Compare

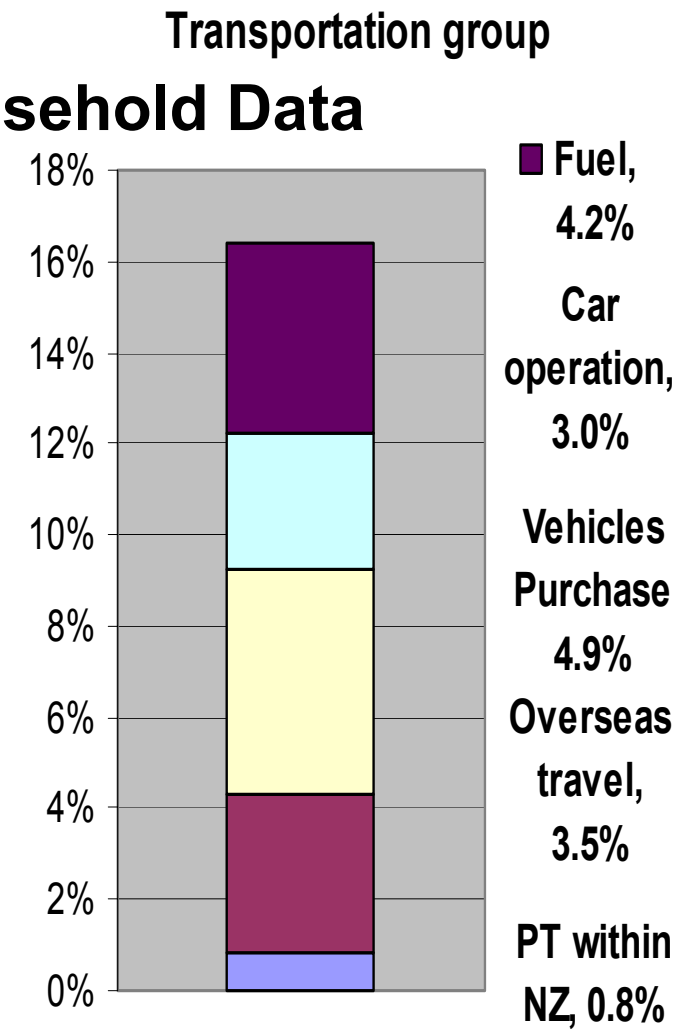
Except Transport ……..

Transport declines to 14%

Fuels up to 4.4%
Overseas Travel Down to 1.2%



ousehold Data



Price and Income Elasticity - Economic Effects

Low Elasticity of Fuel by Price & not Permanent

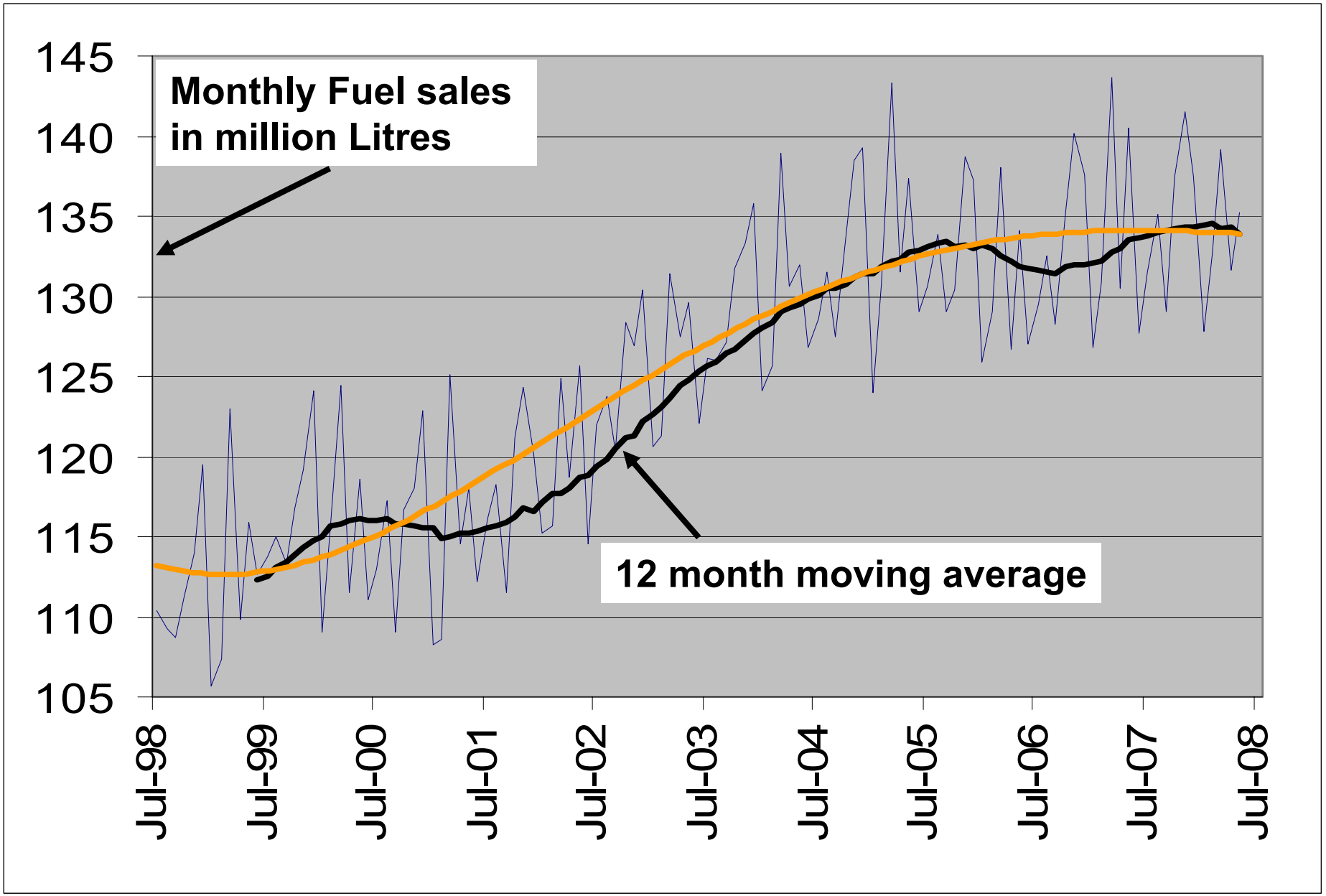
Price elasticity – 15% rising to – 28%

Price goes up, spending goes down by only - 15%
Backsliding, because of low %age of budget

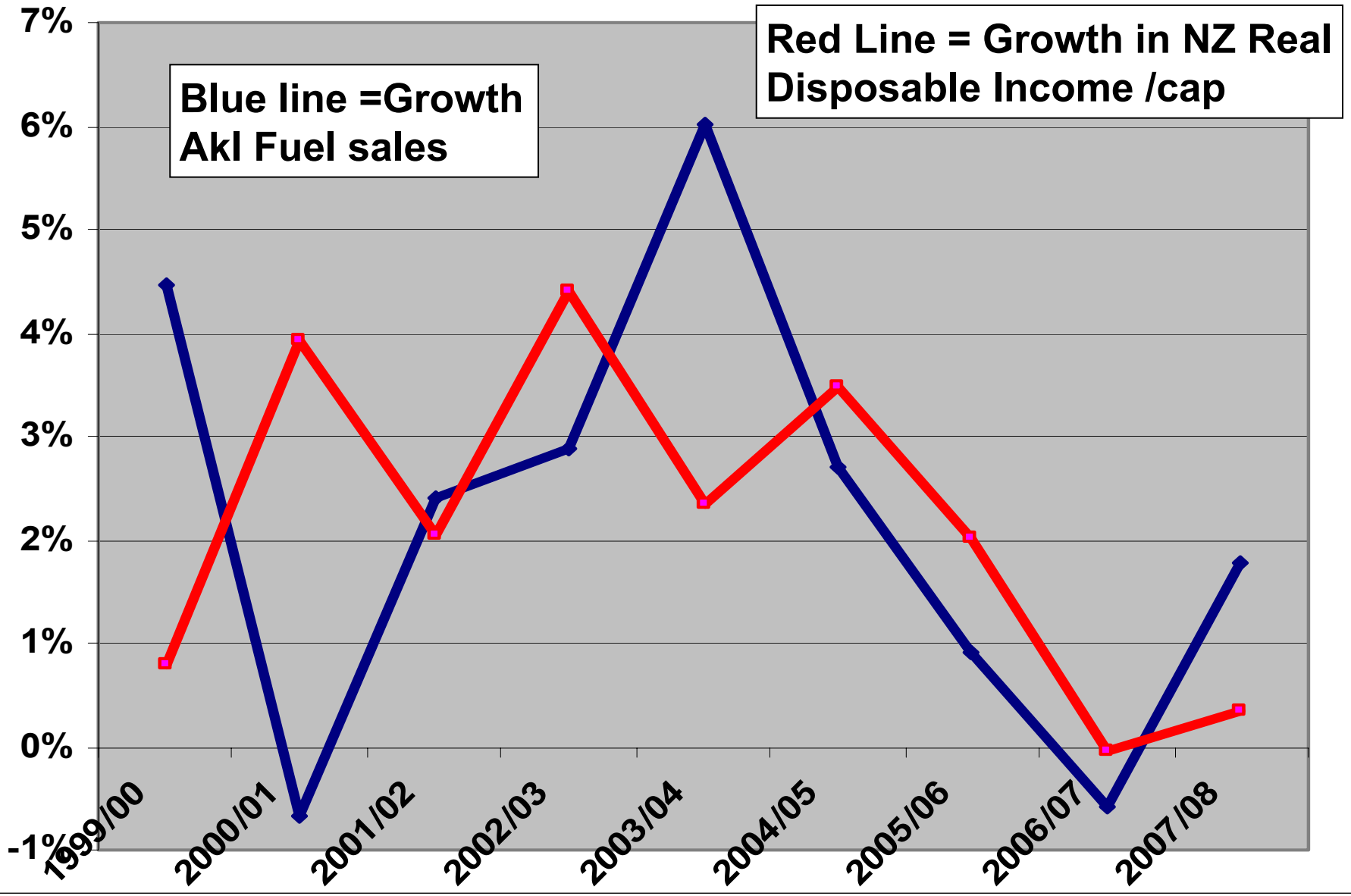
Higher Income elasticity Transport + 130%
(Based on rising income data & Research)
If it works with falling Income……??

Income goes down, spending goes down by + 130 %

Did Auckland Reach Peak Traffic in 2005 ?

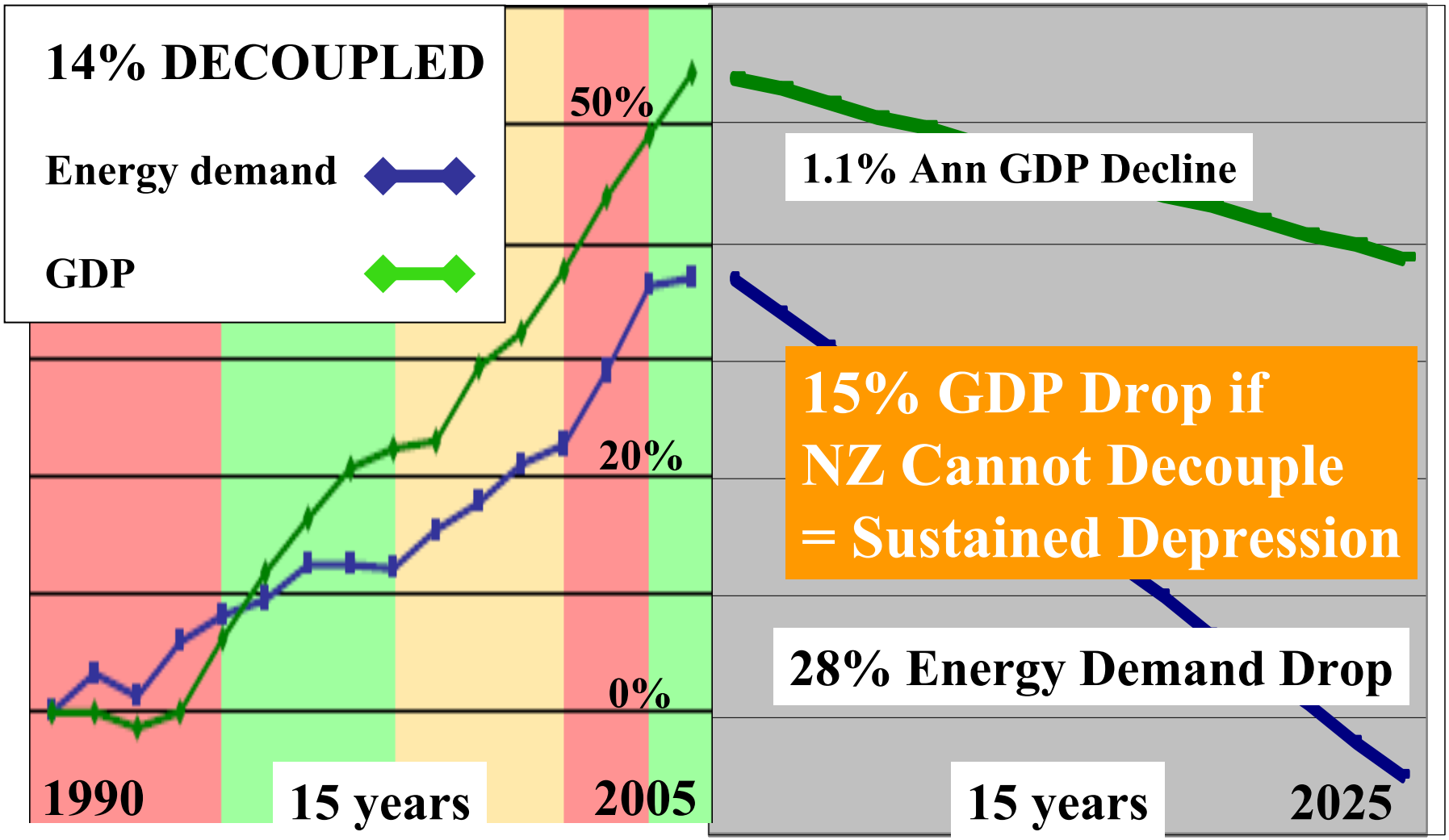


Fuel Sales Growth vs Income Growth /pers



Energy Use & GDP Are Coupled Worldwide

4% Annual Oil Supply Decline - AFTER THE PEAK



Energy Descent - Impact on Vehicles & Modes

Without Reducing Personal Travel

- **Oil Decline 4% = 32,000 BEVs for Akl Fleet**
- **1/3 of Replacements annually from 2020 (ESComm)**

- **Or HOV and active modes**
- **Or 40,000 more trips by PT = (20% increase on today)**

- **But High per cap energy intensity of diesel buses**
- **Particularly on Feeder Routes until Higher Densities**
- **Convert Diesel Buses to Trolleys & Trams**

- **How to fund PT Conversions & Other Mode Shifts If Not Started Now ?**
- **By 2015 50% or More of Capex on Maint & Renewal**

Reversing the Transport Hierarchy

- No More Subsidy for Personal Car infrastructure
- Increasing Disincentives for Personal Cars
- Attention only to Active Modes, HOVs & PT
- Attention to Safety & Amenity for Vulnerable Modes
  - Walking - Cycles - Motorcycles
- Attention to Freight Management
- Progressive Abandonment of No Exits / Minor Roads
- Conversion of Arterial lanes for Trams & Trolleys
- Conversion of Motorway Lanes to Bus & Light Rail
- Encouraging Urban Densification / TODs
- Energy Use a Key Determinant of Land Use Appro

Them That's Doing

Portland Plan to reduce Oil Consumption 50% In 25 Years

Descending the Oil Peak:
Navigating the Transition
from Oil and Natural Gas

Report of the City of Portland
Peak Oil Task Force

PUBLIC COMMENT DRAFT
January 18, 2007

Many Other Cities incl London have similar initiatives

Ventura City "Post Peak Oil Future"
Plan to reduce Oil Consumption 50%
In 25 Years And Increase City Resilience

Conclusion

- **Old Habits in Planning Must Change & Are Changing**
- **This Paper Suggests three Significant Paradigm Shifts in Planning Method**
  - **Short Shock to Long Term Descent**
  - **Congestion designs to Efficiency & Avoidance**
  - **Freemarket Oil Trade to Conditional Trade & Limited Availability**
- **Offered Some Opinions on Economic Issues**
- **Suggested some radical Action for Transport Planning**