Fleet Performance Contracting (FPC): unlocking the transport industries productivity gains

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1 Introduction

The transport, services and storage markets in Australia have been estimated by BTRE (2005) to be $28 billion p.a. for 2003/04, with continued high annual growth being experienced. The road transport market segment comprises $13.4 billion while the transport services and storage represents a $14.7 billion market. This constitutes a formidable market size, and one with many challenges and many opportunities for improved productivity and efficiency.

The transport industry consumes an estimated 15,000 million litres of diesel fuel annually, which is currently valued at $21 billion. This cost is fast becoming a growing burden for fleet owners, and in many cases, exceeds 40% of total fleet operating costs.

Since May 2006, the oil price has stayed above US$70, with the recent all time peak of US$78 occurring on 14 July. The transport industry is now being adversely affected by anything that impact on world crude oil production capacity, or increases in demand. The price trend reported by WTRG Economics (2006) is shown in Figure 1.

There is also a strong market belief that this level of pricing for crude oil is sustainable and will increase during the next couple of years. A breach of the US$100 crude oil price level is conditional on the continual reduction in the spare production/consumption gap, and the inherit capacity of OPEC and other major suppliers in meeting any shortfall in a timely fashion.

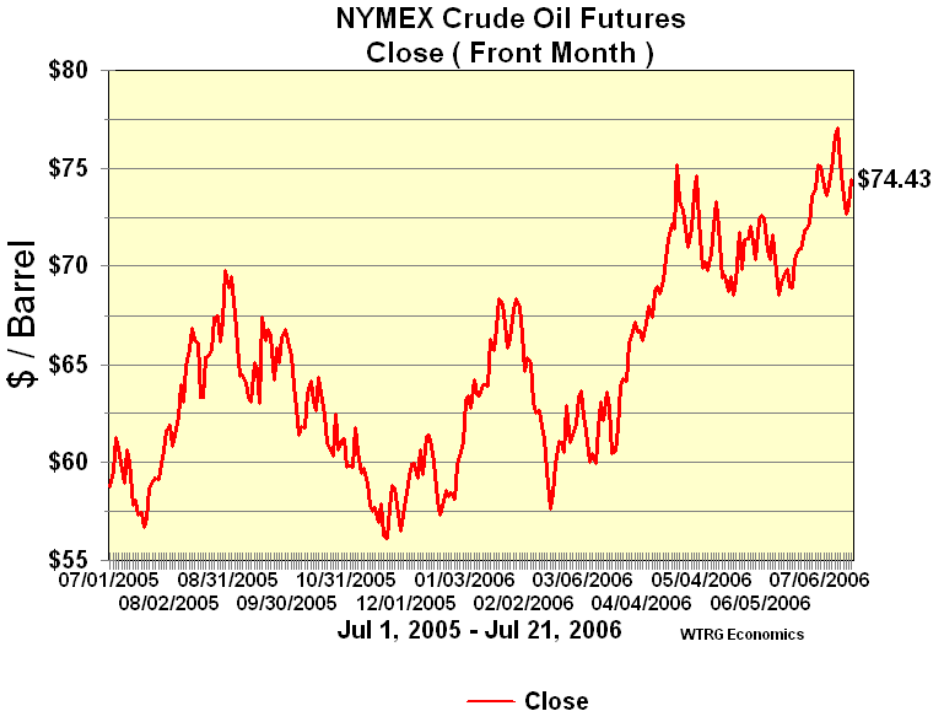

Figure 1 NYMEX Crude Oil Futures 1 July 2005 to 21 July 2006 (WTRG Economics, 2006)

Robinson and Powrie (2004) presented what was at the time of the ATRF 2004 conference, a pessimistic view of crude oil depletion scenarios, which in light of current events, can be shown to have been an optimistic position. Apart from the key areas of conflict in Iran and the Middle East, which may impact on crude oil production, the true drivers of future oil pricing are the rapid growth and oil economy adoption by China and to a lesser extent, India. The BP (2006) world energy analysis, and other sources provide data that clearly identifies some key trends that will certainly increase crude oil pricing:

- High economic growth of China (11.3% - June 06 quarter) and India (8.1% - March 2006)
- Chinese vehicle sales for the first half 2006 grew by 36%
- Chinese crude oil consumption increased by 16% in 2004 to 7 mbd
- Indian crude oil consumption increased by 5.5% in 2004 to 2.6 mbd
- The gap between world oil production and consumption widened in 2005, to a deficit of 1.4 mbd, and is trending towards a larger deficit since 1987.

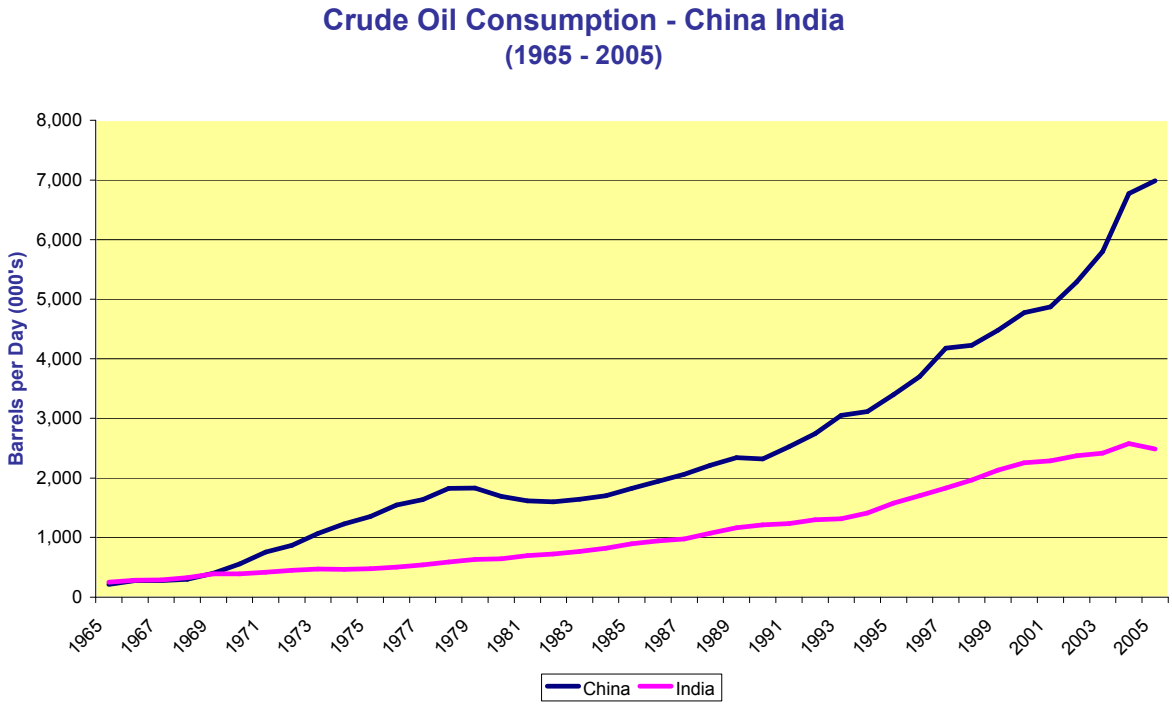

Figure 2 China – India daily crude oil consumption trend since 1965 (BP, 2006)

Figure 2 clearly illustrates the rapid adoption by China of the western oil economy, with the addition of accelerated growth. During 2005, China imported 50% and India 68% of its crude oil requirements, making both countries very dependent on external suppliers, as their own small oil reserves diminish at a greater pace.

With the continuing rapid growth of China and to a lesser extent India, the most likely outcome will be crude oil pricing exceeding ***US$120*** by 2008 or possibly earlier, purely because of a supply/demand crossover and minor supply disruptions, and this would result in diesel prices exceeding **$2.20/litre**.

Based on a historical analysis, the crude oil price has increased significantly by 160% on two recent occasions, January 1979 – January 1981 (over 24 months) and May 2003 –

March 2006 (over 34 months), which clearly indicates that sustained large increases over a long period has happened and will most likely happen again.

Also to be taken into consideration is the impact on the oil price from the large number of commodity traders and hedge funds who have injected billion's of dollars into crude oil trading, making significant profits over the last four years, which will continue to impact the market price for crude oil, and continue to compound the problem.

2 Fleets approaching crisis levels

Fleet owners are grappling for solutions to their escalating fuel and operating costs, the need for improved productivity, reducing greenhouse gases (GHG) and managing the growing compliance burdens related to separate State Government Occupational, Health & Safety laws. New solutions are urgently required to combat the increasing fleet management concerns, which include but are not limited to:

- Vehicle GHG emissions reporting
- Fuel cost management, including cost per km per vehicle
- OH & S costs including driver fatigue management and accident costs
- Vehicle fleet capital management and financing, including upgrades of fleets for fuel performance gains
- Staff costs, overtime consumption and contractor driving time charges auditing
- Other operational costs (including the likely *mass-distance* Government road charges)
- Non-company tax management (FBT log books, fuel tax credits log book, etc.)

Companies are also looking for new and improved methods of costing and optimising to leverage from fleet use, and in the use of technology to introduce new services or improve customer service levels to gain a competitive edge in the market.

In essence, fleets are being impacted in ways that were not envisaged in the past, and a new approach to pinpoint fleet productivity and optimisation is required to overcome the challenges faced, while equally important is a complete understanding and ability to measure the Total Cost of Ownership (TCO) of fleets.

3 Greenhouse Gas (GHG) accounting compliance has arrived

GHG emissions in the transport industry have exceeded 70 million tonnes p.a. representing a significant 13% of Australia's total emissions. Increasing health consequences of diesel particulates are becoming a major cost on the Australian health system, which in 2002 was estimated at $17.2 billion by BTRE (2005).

Apart from strict Euro 4 emissions standards for all new trucks which comes into effect in 2007, there are now additional regulations and compliance issues facing fleet owners, which will force many to determine their GHG emissions. In many cases, once GHG accounting is in place, strategies will need to be developed to reduce GHG's and/or energy use, including fuel. Major impact on fleets will be from the following Federal and State regulations:

- **Energy Efficiency Opportunities (EEO)** legislation, DITR 2006, which came into effect on 1 July 2006, will impose further GHG compliance with companies consuming >0.5 Petajoule energy consumption level, will be mandated to

identify energy (including transport fuel) reduction projects which have a payback of < 4 years.

- **ATO Heavy Vehicles fuel tax credit system**, which came into effect on 1 July 2006, requires fleets who claim >$3million p.a. in fuel tax credits, to join the AGO Greenhouse Challenge program.
- **State EPA license holders** have obligations to implement GHG reduction projects where the payback is <3 years.

Implementing the compliance and management of these regulations will require company resources, and specific strategies to ensure that projects can be identified which reap the highest returns. Critical to such projects being implemented efficiently will be the use of suitable measurement and verification processes and technologies.

4 Fleet Performance Contract (FPC)

During the 1980's, improved energy efficiency for Commercial, Government and Industrial facilities were being promoted with strong U.S. Government policy incentives. The long payback periods (5 – 8 years) of these projects prevented the uptake of these initiatives. To overcome this impasse, Energy Performance Contract (EPC) emerged, where the energy efficiency project is funded purely from the project savings generated, without any capital outlay by the customer, as savings are guaranteed by the EPC contractor.

The projects are therefore either funded by the EPC contractor or a finance company. Figure 3 highlights the simplicity of the EPC model, and has resulted in billion's of dollars of projects in the USA and globally. Australia has successfully implemented an EPC industry, and during 2005, over 100 (BCSE, 2006) such projects were successfully implemented.

Figure 3 EPC financing model

A ***Fleet Performance Contract (FPC)*** has been developed, where productivity improvement projects can be directly funded from project savings, at no additional impact on an organisation's operating or capital budget.

Areas that can offer major improvements and savings to a fleets optimisation include:

- Productivity
- Fuel
- Safety
- Environment

As detailed in Figure 4, fleet performance can be categorised into four Key Result Areas (KRA), each with the potential for improvement projects identified and implemented in order for additional fleet performance to be achieved. Where a fleet is evaluated to identify potential projects that add value to their KRA's, these projects are incorporated into a single contract or FPC. The savings from these projects are used to fund the FPC service provider. The fleet owner makes no capital outlay to pay for this service, and only if savings are obtained with the FPC service provider receive payment.

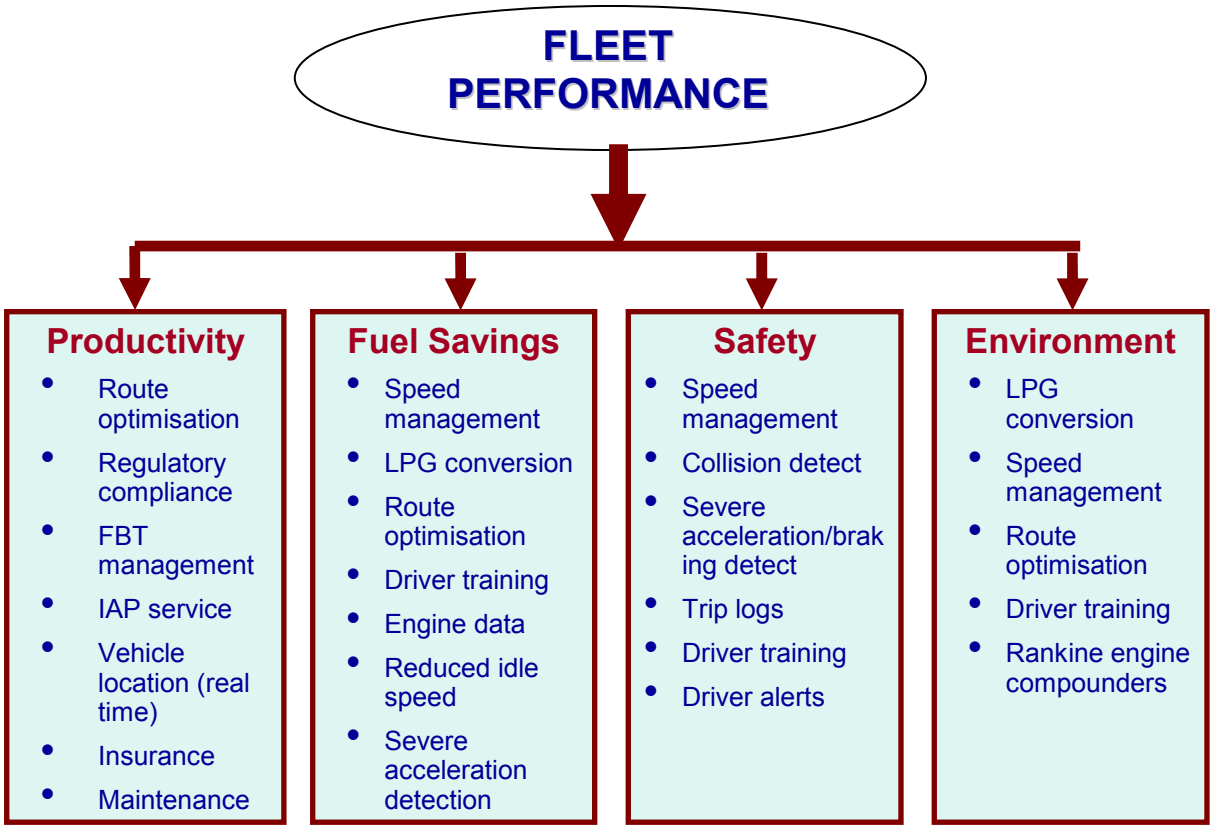

Figure 4 Fleet Performance Key Result Areas (Fleet Effect, 2006)

An overview of the FPC process flow as implemented by Fleet Effect is shown in Figure 5:

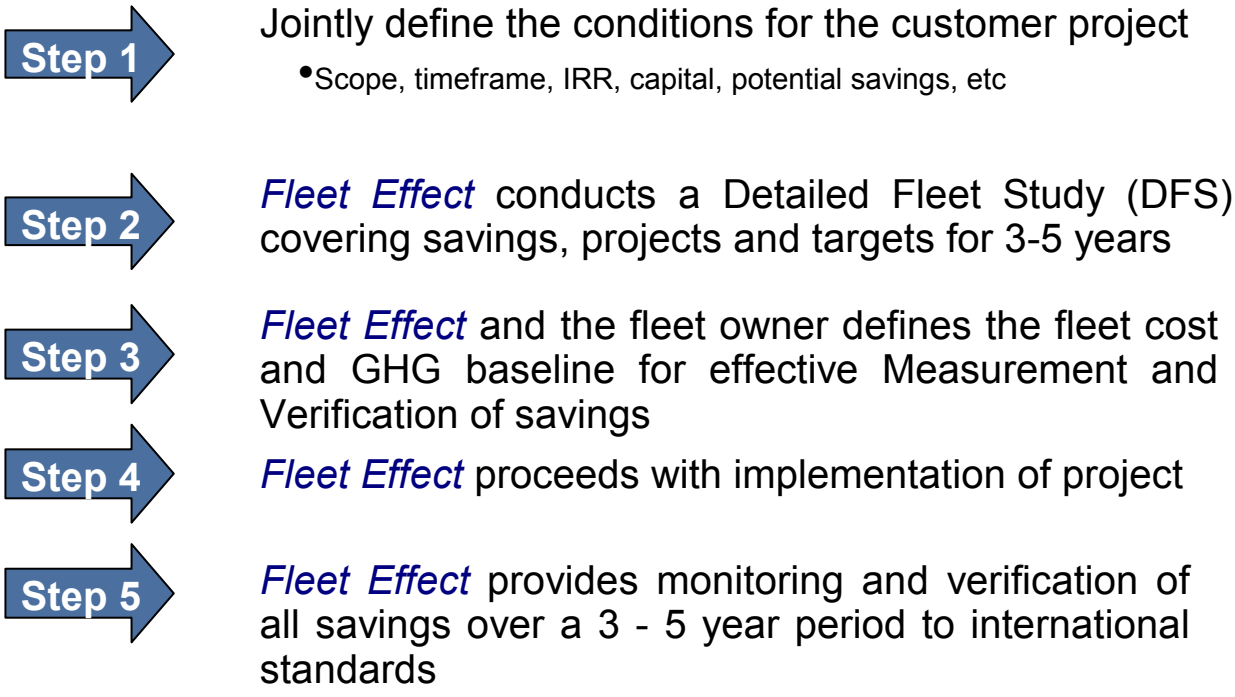

Figure 5: Fleet Performance Contract (FPC) process (Fleet Effect, 2006)

5 Technology solutions: A fleet necessity

There are numerous innovative technologies and processes that can be implemented as part of a comprehensive FPC, with many having paybacks within 18 months.

Some key technologies with associated benefits for are:

1. *Diesel to LPG (100%) conversion of LCV's and Heavy trucks:*
    - 40 to 50% fuel cost reduction
    - reduced engine maintenance, and extended engine life
    - increased engine power and torque rise
    - significant reduction in truck cabin noise, vibration and driver fatigue
    - 15 - 20% GHG reduction with almost all particulates and NO_x removed.
2. *GPS telematics solution:*
    - major reduction in vehicle accidents savings $,000's per vehicle
    - reducing insurance costs
    - reducing OH&S compliance and legal liability costs
    - reducing vehicle maintenance costs by at least 20%
    - reducing fuel costs by 5-10%
    - real time measurement of fuel consumption and GHG
    - improvement in regulatory compliance management including IAP
    - optimised FBT management and costs

3. *Fleet asset optimisation*:
    - vehicle mix changes within the fleet reducing capital costs
    - capital purchase cycle management reducing costs significantly
    - better utilisation of pooled vehicle fleets reducing costs by up to 30%
4. *Dynamic route optimisation utilising real time* data from *GPS telematics*:
    - reducing vehicle numbers by up to 25%
    - reducing fuel costs by 20 – 30%
    - reducing drivers by up to 25%
    - increasing vehicle capacity
    - reducing other major vehicle operating costs

There are many new and upcoming technologies in alternative fuel, safety and emissions reduction, that are expected to make major improvements to fleets, which can be implemented risk free by fleet owners through the FPC method. This would allow a faster adoption of new technologies, and the associated fleet performance improvements and savings.

6 Fleet case study analysis

Case Study #1 – Line-haul truck fleet of 50 B-doubles

The case study is presented to provide an indicative representation of the potential scope for savings under an FPC project when GPS telematics and LPG conversion technology is applied to a fleet of heavy trucks haul freight interstate.

Fleet assumptions are:

- 50 B-double heavy trucks
- 250,000 km p.a. per vehicle
- Engine idle time represents 5% of total engine operating time
- 125,000L diesel fuel use p.a. based on a fuel economy of 2km per litre
- Annual fleet diesel fuel bill of $7.2m based on a net diesel price of $1.15
- Technology capital costs, services and project finance costs for a 5 year period are $7.0m

Annual fleet savings made are allocated to the two technologies employed as follows:

GPS Telematics - $2.4m savings

- Reduced speed, driving harshness – fuel saving of $720,000
- Insurance savings through remote asset security management- $100,000
- Vehicle maintenance & tyre wear savings - $300,000
- Accident cost savings (50% reduction) - $500,000
- Compliance & OH & S claims savings - $750,000

LPG Conversion - $3.9m savings

- Diesel fuel savings from LPG conversion - $3.6m
- Extended maintenance & delayed TBO savings - $300,000

The combined impact of the technologies employed would save the fleet $6.3m p.a., for a total net savings (shared savings available once capital & financing costs are deducted) of $25.5m or **$5.1m p.a.** Depending on the project and finance risk taken by the FPC contractor, the payment to the contractor would fall between 20 – 40% of net savings.

In addition to the massive cost savings, under the EEO regulations, this project would result in an estimated energy saving of **50TJ** each year, and a GHG saving of **3,700 tonnes** p.a.

A number of other case studies will be presented as part of the paper presentation at the conference.

7 Conclusion

Fleet Performance Contract (FPC) is an innovative business approach to funding significant fleet productivity projects that deliver major cost reduction gains without impacting on the operating budget of fleet owners. Fleets now have a solution to mounting cost and compliance problems, and can leverage their cash flow in a more efficient means.

The FPC can also be used to support an organisation's commitment to meeting EEO regulations in reducing energy use, the AGO Greenhouse Challenge in reducing GHG emissions, and more importantly, the implementation of great ROI based projects that deliver major operational budget reductions immediately.

The FPC is an innovative risk free approach to extracting the maximum performance from fleets, and is designed to offer real savings, that compound from year on year.

Australia's first FPC service shall be launched during September 2006 by Fleet Effect, and should become the catalyst for many such services that will serve fleets over the coming years

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