FORECASTING PEAK OIL PROBABILITIES

An oil supply probability distribution has been developed by analysing a wide range of expert estimates of future conventional oil supply and decline rate. The distribution indicates the probability that a certain quantity of oil supply, or more, will be available in a given future year. There is a 97% probability that the amount of oil described by the blue line will be available, while there is a very small probability that an amount greater than that described by the pink line will be available. Palmerston North is planning for an 85% oil supply probability.

VAMPIRE ANALYSIS

The Vulnerability Assessment for Mortgage, Petroleum and Inflation Risks and Expenses (VAMPIRE) is an econometric analysis methodology calculated for households by using four variables:

- Proportion of those working who undertook a journey to work by car;
- Proportion of households with 2 or more cars;
- Median weekly household income; and
- Proportion of dwelling units that are being purchased.

The first two variables are measures of car dependence and the latter two indicate income and mortgage indices respectively. A relative vulnerability score of between 0 and 10 (called the VAMPIRE Index) is calculated for each meshblock, based on the degree of car dependence, income level and mortgage index of the households situated within that meshblock.

TRAVEL IN PALMERSTON NORTH

Approximately 17% of all trips in Palmerston North are vehicle driver trip legs of less than 2 km, which is a comfortable distance for walking or cycling. A further 23% of all trip legs in Palmerston North are vehicle driver trip legs of 2km to 5km, which is a comfortable distance for cycling and is further serviced by public transport routes. Most residential locations, workplaces and other activities are situated within 5kms from the Squa.

A comprehensive and valued public transport network, and well promoted walking and cycling culture in Palmerston North, are fundamental to reducing the City’s dependence on the private motor vehicle.

ECONOMIC MODELLING

Economic analysis produced using the Economic Futures Model describes the ramifications of failing to plan for reduced oil supply. A number of alternative futures for Palmerston North are considered:

- ‘Business As Usual’ (BAU) models a future in which there are no constraints on the supply of fuel oil
- ‘No Intervention’ acknowledges global fuel supply constraints and assumes PNCC’s 85% risk profile
- ‘With Intervention’ utilizes the same risk profile, but assumes implementation of a number of management interventions designed to reduce reliance on fuel.

If we don’t adapt to peak oil the modelling concludes that the economy will go into shock and the number of employed people will fall sharply. It also indicates that through intervention employment rates can be maintained.

MANAGEMENT STRATEGIES

Land Use and Urban Form

Adaptive urban development in the CBD, and develop several high intensity multi-destination satellite centres.

Capital Spend Strategy

Restructure funding and planning requirements in transport energy inefficient areas.

Ability to Choose

Increase the accessibility of public transport, cycling and walking infrastructure.

Embracing Technology

Engage with central government, encouraging the implementation of policy to improve the efficiency of vehicle fleets.

Support Business

Work with industry to facilitate a freight mode shift from road to rail, and encourage further development of sectors with lower fuel intensity.

With infoRmation to BetteR antiCipate, pLan anD manage a tRanSition to a LeSS tRanSpoRt eneRgy intenSive City.

This Study is an evidenCe-bAseD assessment, proviDing Palmerston north City CounCiL and CounCiL’s sTAkeholdeRs with information to better anticipate, plan and manage a transition to a less transport energy intensive city.

A successfUl collaborAtion of three cOnsultants and counciL brings together expertise in transportAtion plaNning, traffic engineering, risk expoSuRe to energy anD reSoURCe issues, anD ecological economics.

TogetheR these address the impliCations of peak oil anD effect on the local community.