

Shaping a useful urban research agenda

Centre for Sustainable Cities workshop

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TE WHARE WĀNANGA O TE ŪPOKO O TE IKA A MĀUI



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Plan

1. The big drivers of urban change
2. A framework and questions - for better understanding and reshaping our cities

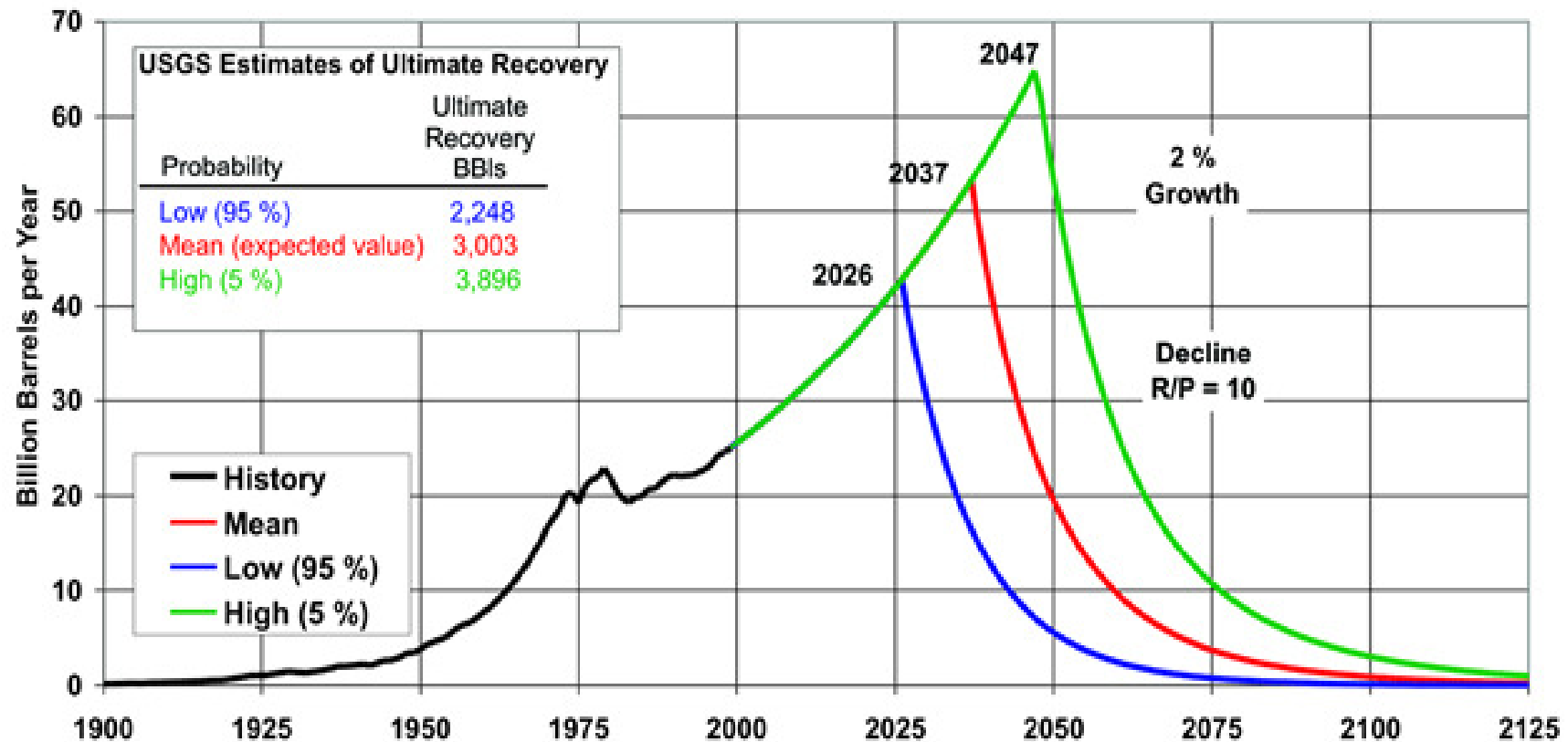


Galveston Island, Texas as Hurricane Ike approaches 12 Sep 2008. AP Photo/David J. Phillip

1 The big drivers that won't go away -- peak oil & climate change

Peak oil? Even conservative US EIA projections see sharp drops before long

Figure 2. Annual Production Scenarios with 2 Percent Growth Rates and Different Resource Levels (Decline R/P=10)



Source: Energy Information Administration

Note: U.S. volumes were added to the USGS foreign volumes to obtain world totals.

Energy conclusions (1)

- Oil reserves uncertain
- Peak oil likely in next 10 years
- End of *cheap* oil, not *running out* of oil, or the end of civilisation
- Expect rising prices & price volatility
- Permanently sky-high prices unlikely

Energy (2)

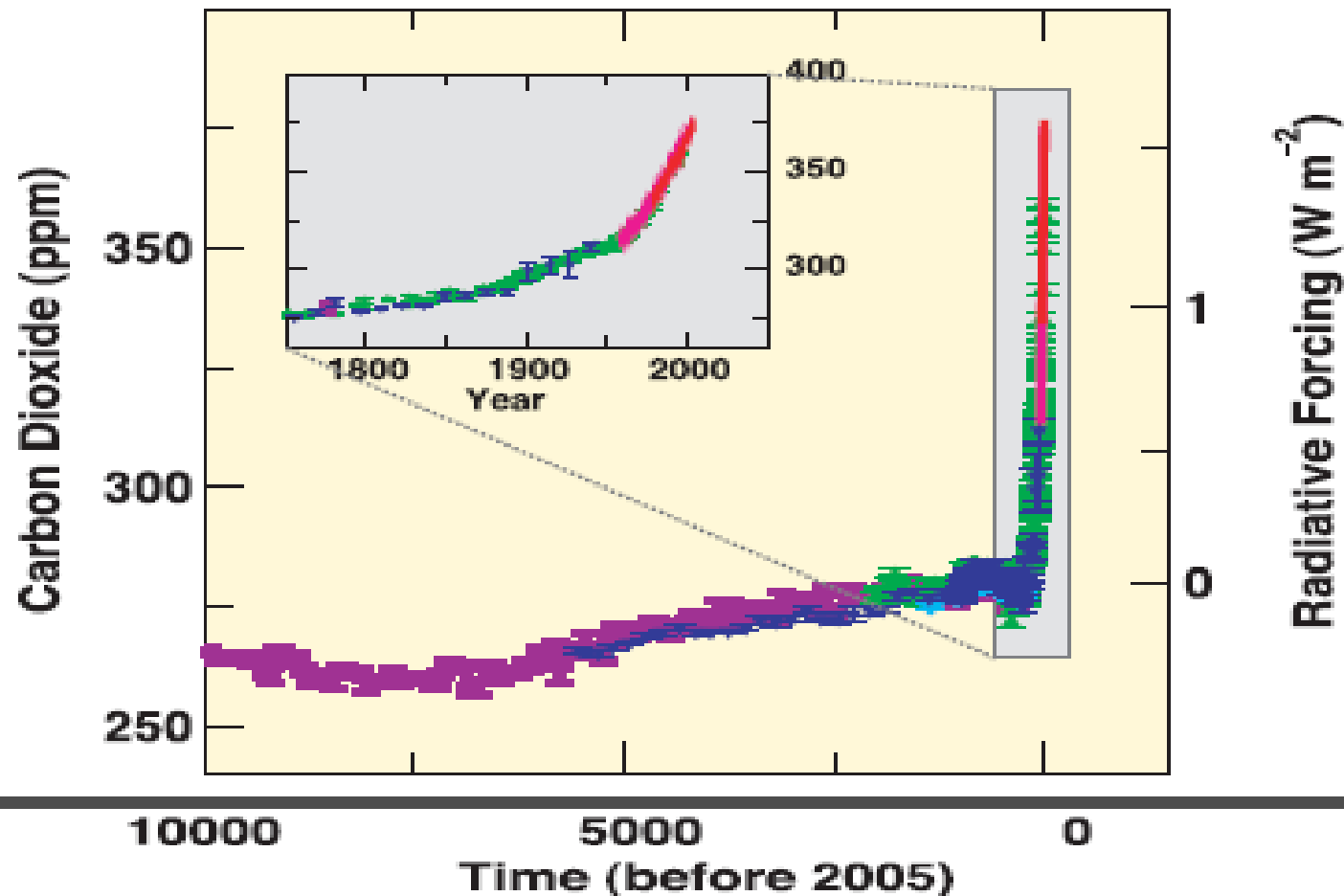


Source: Origin

- 10-20 years needed for an orderly transition
- Running out of time
- How to motivate policy makers to act fast enough – to meet an ‘invisible disaster’ (Hirsch)
- Energy crisis policies should not be inconsistent with environmental sustainability
- Must include carbon emission

GHG concentrations – the upward gallop

CHANGES IN GREENHOUSE GASES FROM ICE CORE AND MODERN DATA



Climate change conclusions

- Emissions overshoot is now highly likely: 385 ppm CO₂ **already** too high
- Likelihood of being able, globally, to ‘**peak**’ emissions by ~**2020** and cut emissions fast enough (~3% per annum) to around **zero** by 2050 is almost negligible
- Technological solutions?? – e.g. air capture of CO₂, and biofuel energy generation with CCS?
- Ongoing denial continues to weaken political commitment to take tough measures
- However, economic difficulties suggest an Obama-type recovery plan – **renewables, sustainable infrastructure**

Conclusions on the big drivers

- Other drivers of urban change matter but CC and energy are huge
- Humans deny the need for big adjustment, until we ‘overshoot’
- We don’t get a second chance with climate change
- Energy insecurity increasingly on the global agenda - keep up with change or we expose economy to undue risk
- Urban transport & living patterns need to adjust over next decade or so, to
 - improve energy efficiency rapidly
 - help cut emissions radically

2 Reshaping our cities: guiding questions

- Urban form and transport are changing, but too slowly?
- How are we going against the **national targets**?
- Are we learning enough about the **effectiveness** of current policies?
- Do we know enough about the **drivers** of urban form, so we can accelerate the pace of change?
- How do changes in urban form affect **outcomes** that matter to us - environmental, economic etc?

Urban system performance

- Cities are adaptive, resilient systems
- Varying performance, with differing effects on key outcomes that affect human well-being
- Examples of key performance dimensions / critical indicators
 - Transport energy use and CO₂ emissions
 - accessibility (incl. access to public transport)
 - transport and housing affordability
 - ambient air emissions
 - vehicle distance travelled (VKT)
 - car parking pressure and congestion
 - satisfaction with governance on these issues

Urban governance

- Need to understand the performance of existing institutions
- How are urban challenges affecting governance performance?
 - Are effective strategies being **devised & implemented** to make urban form, housing and transport environmentally sustainable?
 - If not, why not?
 - Are councils **managing the tensions** between socio-demographic drivers and 'sustainable' outcomes?
 - Coping with innovation challenges such as **new developments**?

Addressing the barriers

- How can councils work positively with communities and central government to address barriers to more sustainable urban development?
- Appropriate roles for / participation of key stakeholders?
 - e.g. property developers, active transport groups, smaller households seeking more urban living
- Public awareness?
 - 34% of morning peak traffic in Chch is education related

Trialling tools, and modelling, for greater urban sustainability

- Modelling of **housing plus transport cost** scenarios (key elements of overall household costs) under various assumptions
 - e.g. peak oil, high carbon price
 - high carbon price, prolonged economic hiatus
- Evaluating and shaping **TDM strategies**
 - personalised travel planning
 - transit oriented development
 - bus priority lanes
 - parking policy
 - do PT and active travel have ‘priority’ in both new and redeveloped areas?

Trialling tools, and modelling, for greater urban sustainability (2)

- **Land use and transport integration**: evaluate access and ensure sustainable travel is 'built in', e.g.
 - Do new developments give good access to sustainable travel modes?
 - Do nodes provide for sustainable infrastructure needs?
 - Do district plans require sustainable travel access as condition of development?
- Test and evaluate **new governance / participation** techniques to reshape local housing development plans; travel planning
 - e.g. collaborative travel management associations

Urban resilience – adapting to multiple shocks

- Assuming a triple shock:
 - short-term economic slump or hiatus
 - a carbon price
 - rising trend in liquid fuel prices
- ...then **how are cities responding** and how should they?
 - Where are mortgage sales located vis a vis transport costs?
 - What does this say about how the public see the city change over time, and changing housing preferences?
 - What strategies are cities adopting to ride out the **short** term, while positioning for the **longer** term? - e.g.
 - For sustainable transport and infrastructure
 - For housing development and redevelopment

Thanks.
Questions?

<http://sustainablecities.org.nz/>

