



The role of energy efficiency in New Zealand's growing economy

Heather Staley
Chief Executive
**Energy Efficiency and
Conservation Authority**

Outline

Relationship between GDP and energy intensity

Impact of higher energy prices

- At firm level
- At economy wide level

What could we do about it?

- At a firm level
- At an economy wide level

Whose responsibility is it anyway?

Le Chetelier's Principle

“A system in equilibrium will respond to stress in such a way as to counteract that stress.”

Le Chetelier in practice

Chemistry

- Stable system
- Add pressure – system will contract to reduce volume
- Basis for Boyle's law

Economics

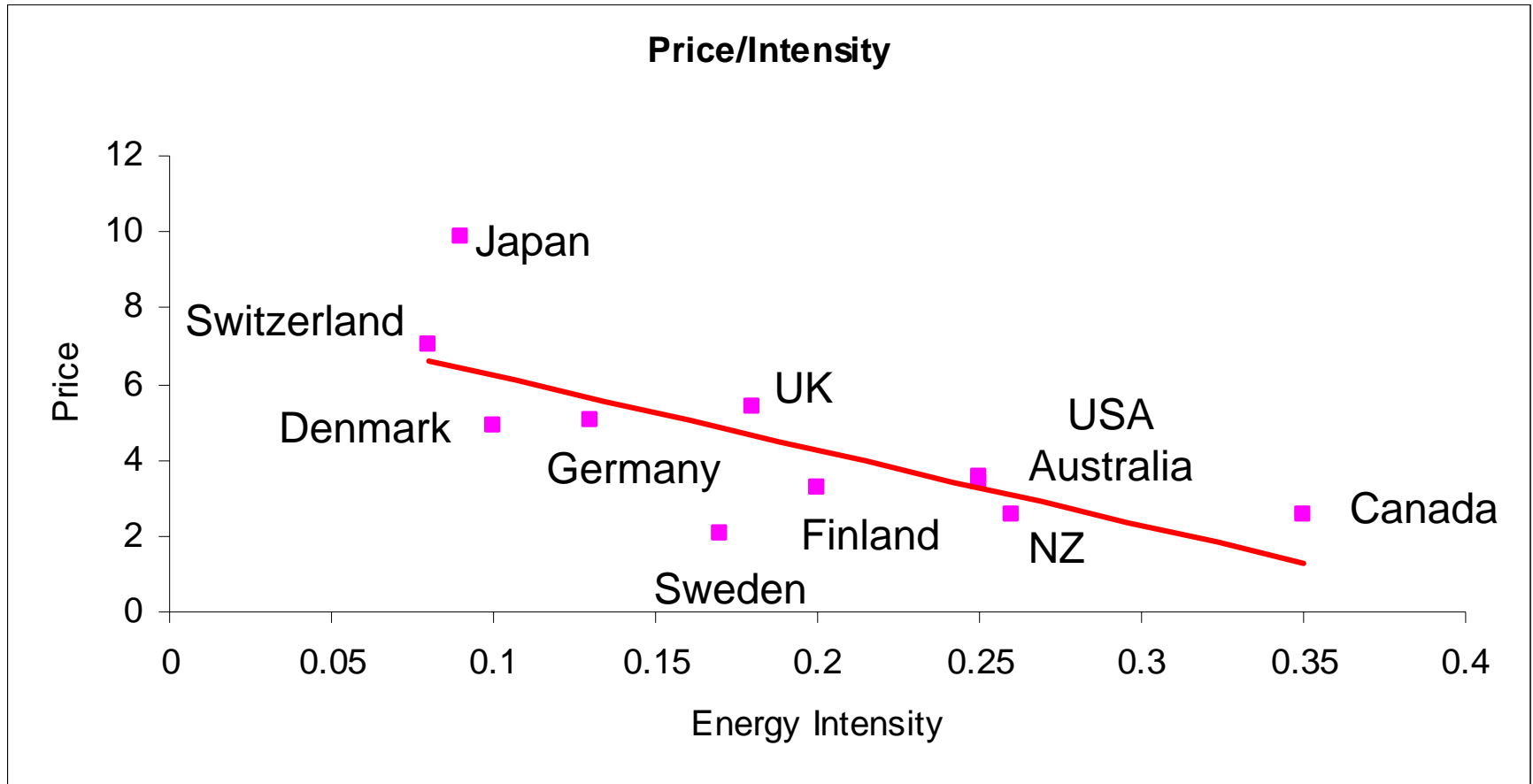
- Stable business model
- Increase labour costs – businesses work to reduce amount of labour required per unit of output

Relationship between energy intensity and price

New Zealand's high energy intensity a consequence of low cost energy

Internationally there is a relationship

International experience of energy intensity and energy prices



What will happen with an increase in energy prices in New Zealand?

- At the firm
- At the sector
- Economy wide

What will happen.....?

Dependent on energy use and price sensitivity

Options

1) Do nothing

2) Reduce energy costs

Negotiate better prices

Substitution of capital for energy – energy efficiency

Change production mix – reduce energy intensity

3) Close down

Why wait.....?

The case for energy efficiency is current and proven
EECA's electricity users grant project has looked at electricity consumption patterns of 41 large industrial sites with combined electricity usage of over 5000 GWh p.a

Identified over 130 GWh p.a in electricity savings
Expect at least 70 GWh p.a to be implemented in the short term

At sector / economy wide level

Net result a reduction in energy intensity

Energy use won't grow as fast as might otherwise be the case

Therefore won't need to increase energy supply at the same rate

But at what adjustment cost for the firm and economy?

Increased costs

Energy sector signaling prices will continue to increase

Kyoto coming into force will crystallise a price of carbon

What level of adjustment costs do we want to face as a nation?

What the Australian's know

Established supply curves for energy efficiency investments

Modelled the effect of 50% penetration over 12 years of enhanced energy efficiency:

- \$1.8 billion (0.2%) increase in GDP
- 9,000 more jobs
- 9% reduction in stationary consumption
- 32MT (9%) reduction in GHG emissions
- \$27 billion NPV lifecycle energy savings with investment of \$12 billion (IRR 26%)

Calculated the cost benefits to firms



Energy Efficiency in New Zealand

Contact Energy research

68% “energy efficiency important or very important”

EECA survey (August 2003)

65% making an effort towards energy efficiency in the home

41% making an effort towards energy efficiency at work

But has this changed anything?

- Good idea – for everyone else.....
- What can EECA do?
- What can't EECA do?
- What do we want for New Zealand?

Conclusion

Reducing NZ energy intensity going to happen with higher energy prices

- Some of this will be energy efficiency
- Some of it will be reduced economic activity
- How do we maintain our standard of living as we make the transition?

Improving energy choices

www.eeca.govt.nz