

Manufacturing a Response to Climate Change Energy Efficient Products & Processes

Toyota Motor Corporation Australia

Jon Ward

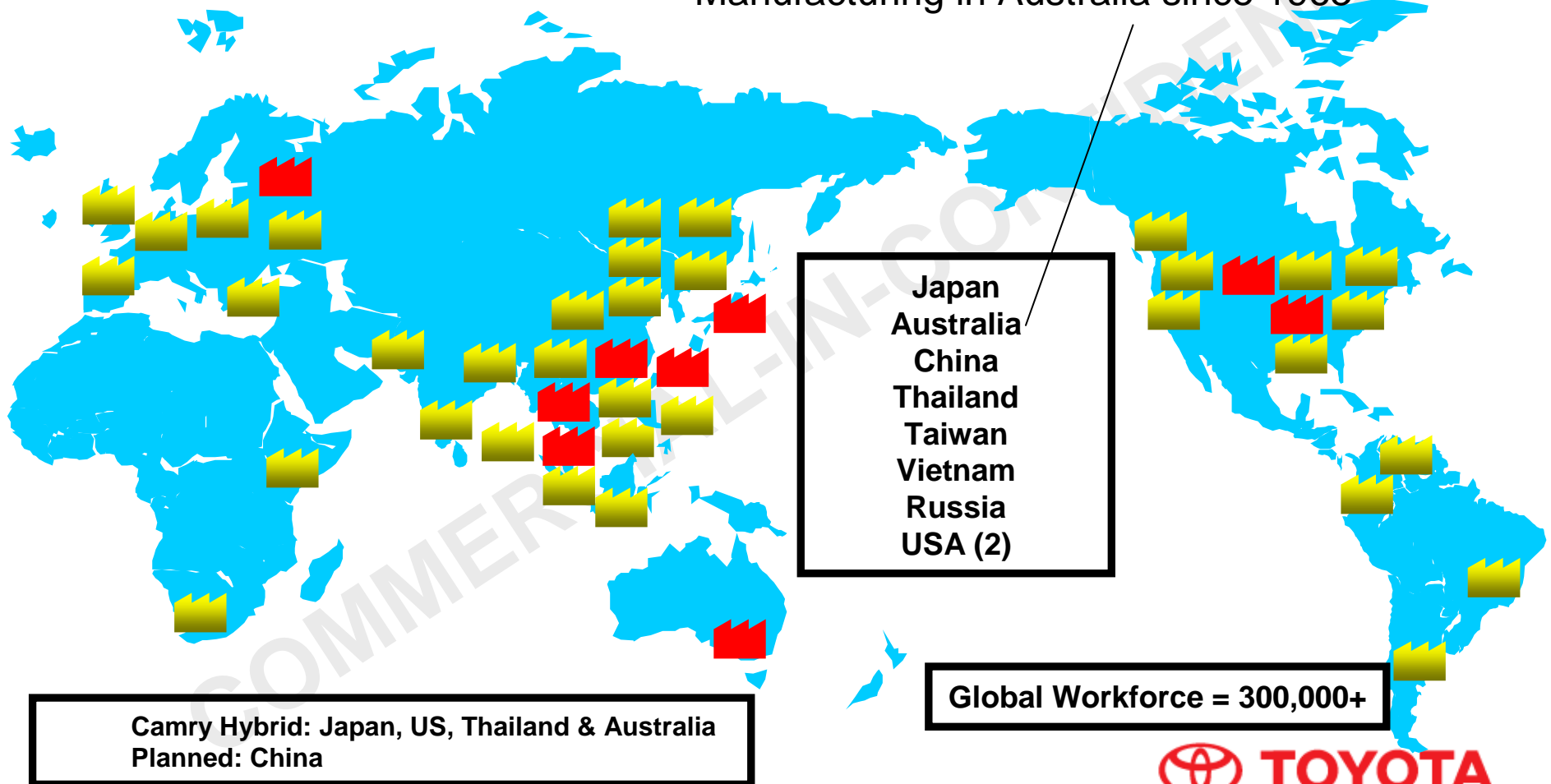
Manager Environmental Policy,
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CORPORATE OVERVIEW

28 Countries, 54 Plants, including 9 Camry

Manufacturing in Australia since 1963



Japan
Australia
China
Thailand
Taiwan
Vietnam
Russia
USA (2)

Camry Hybrid: Japan, US, Thailand & Australia
Planned: China

Global Workforce = 300,000+



CORPORATE OVERVIEW



	2004	2005	2006	2007	2008
Total Market	955,229 vehicles	988,269	962,521	1,049,982	1,012,164
Toyota sales (excl. Lexus)	201,737 (#1)	202,817 (#1)	213,839 (#1)	236,647 (#1)	245,653 (record) (#1)
LM Domestic Sales	45,940	39,441	33,000	48,372	42,629
Exports	65,400 (\$1.2bn)	68,989 (\$1.3bn)	80,000 (\$1.5bn)	97,688 (\$1.8bn)	101,563 (record) (\$1.7bn)
Production	109,862	109,222	113,000	146,060 44% of Aust. production!	141,467 44% of Aust. production!
In 2008 Toyota Australia launched the 2012 Presidents Goals					



What do we know about action on climate change

5%

understand their carbon emissions

15%

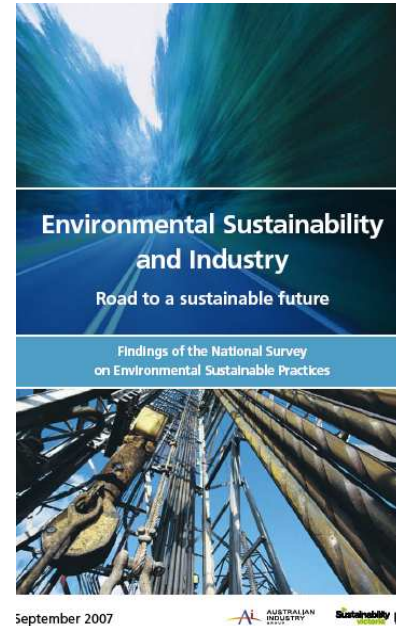
engaged their supply chain on environmental considerations

50%

no environmental impact assessment for products

60%

no action to reduce carbon emissions



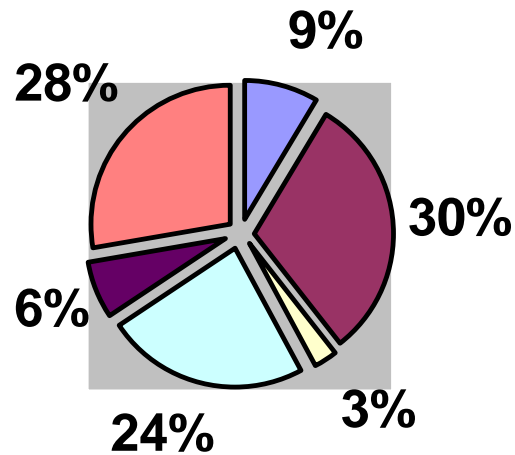
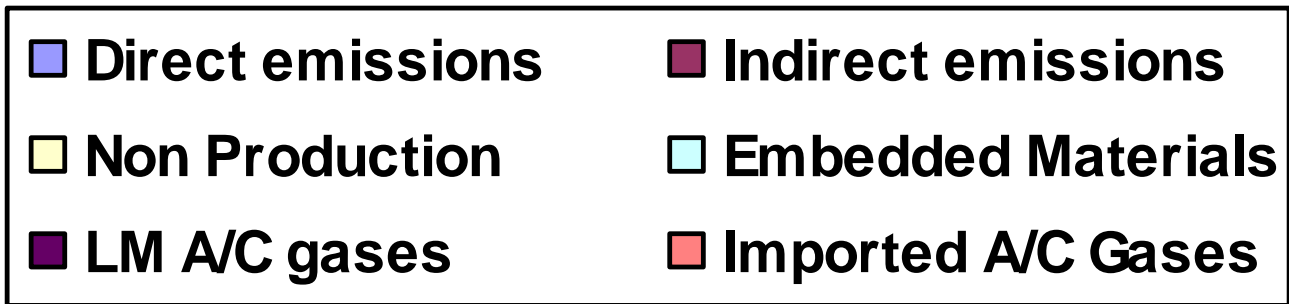
Government, Business & the Battle Against Climate Change

Economist Intelligence Unit 2009

- 18-24% have assessed or taken action on upstream supply risks
- 62% have implemented energy efficiency measures
- 23 % have assessed the lifecycle impacts of products and services
- 79 % feel that many firms are using climate change merely as a marketing tool



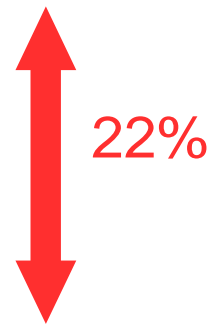
TMCA Carbon Footprint



Shutdown Energy monitoring



2007/08 – 2642 MWh



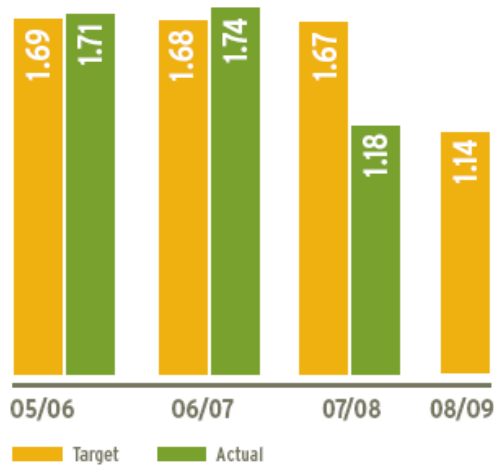
2008/09 – 2072 MWh

Use of Recycled Materials in Manufacture



Reducing Greenhouse gases

Production CO₂ Emissions
Tonnes CO₂/ Vehicle



Non-Production CO₂ Emissions
Tonnes CO₂



31% reduction in manufacturing gas use

25% reduction in manufacturing electricity use

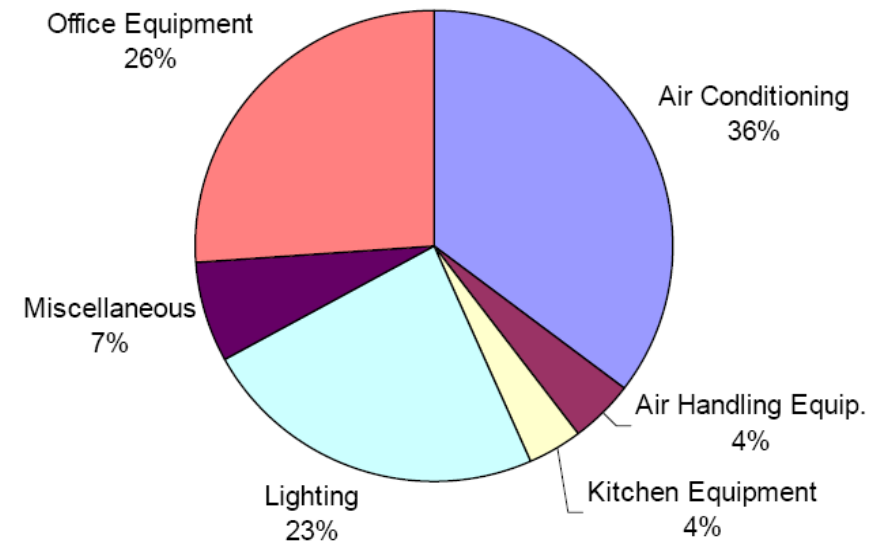
32% decrease in CO₂ emitted per vehicle manufactured

Further EREP Opportunities





Building Energy Efficiency



Toyota CHQ Total Electrical Consumption by End User Group



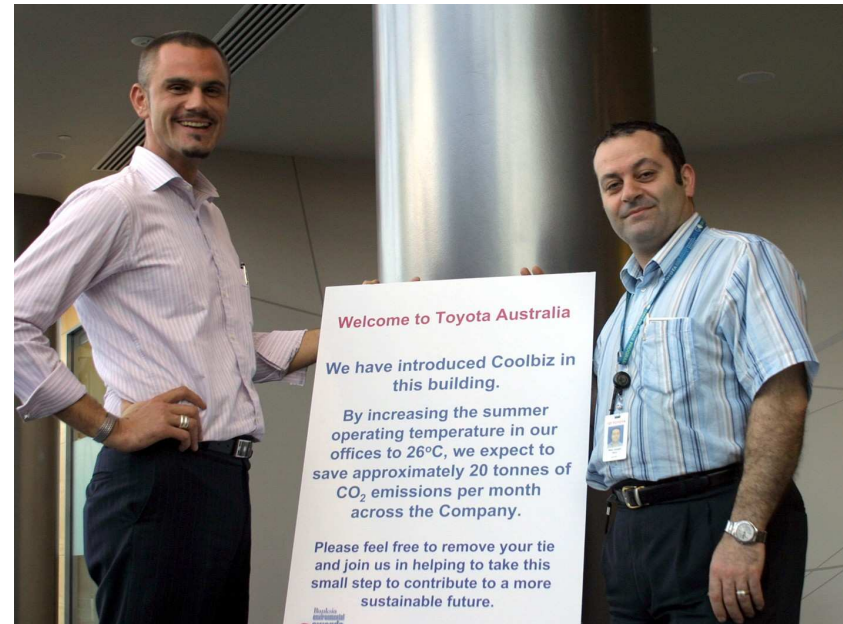
Case study: Coolbiz/ Warmbiz

Introduced in 2005

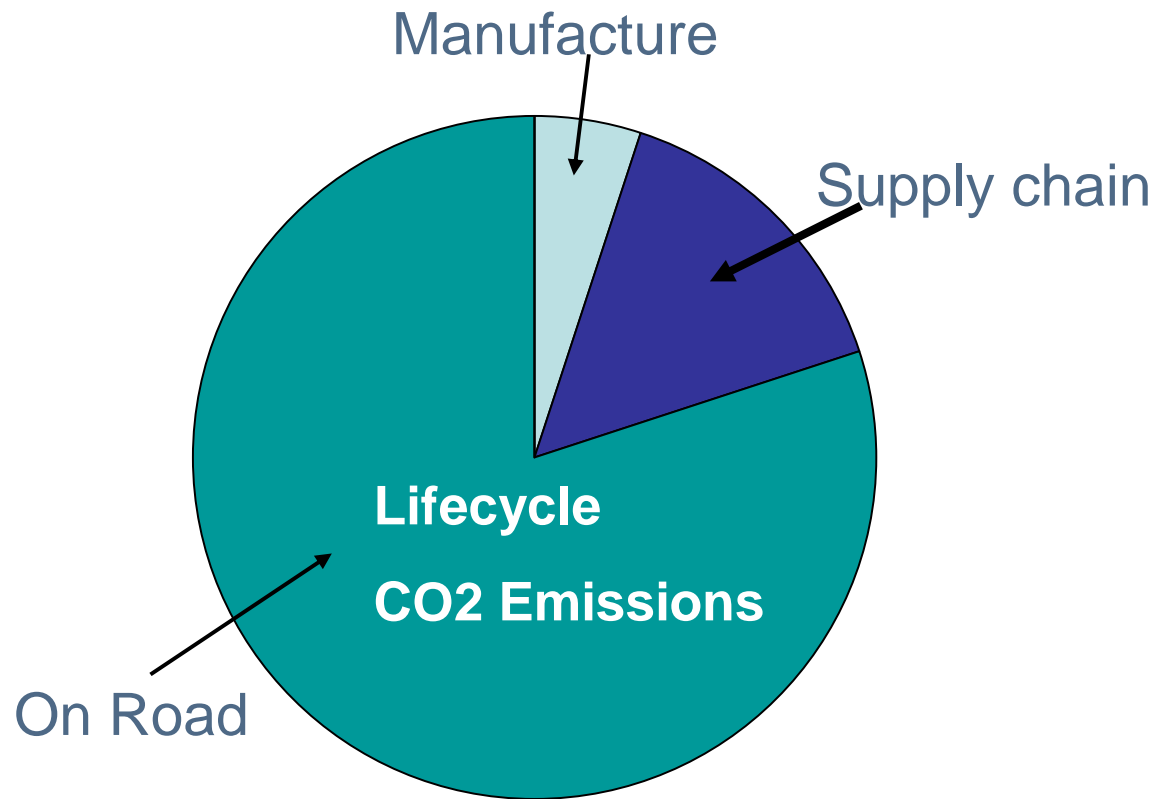
Dress for comfort and rely less on the air conditioning.

5.1 % reduction in energy use at corporate HQ

Corresponds to 20 tonne per month CO2 saving.



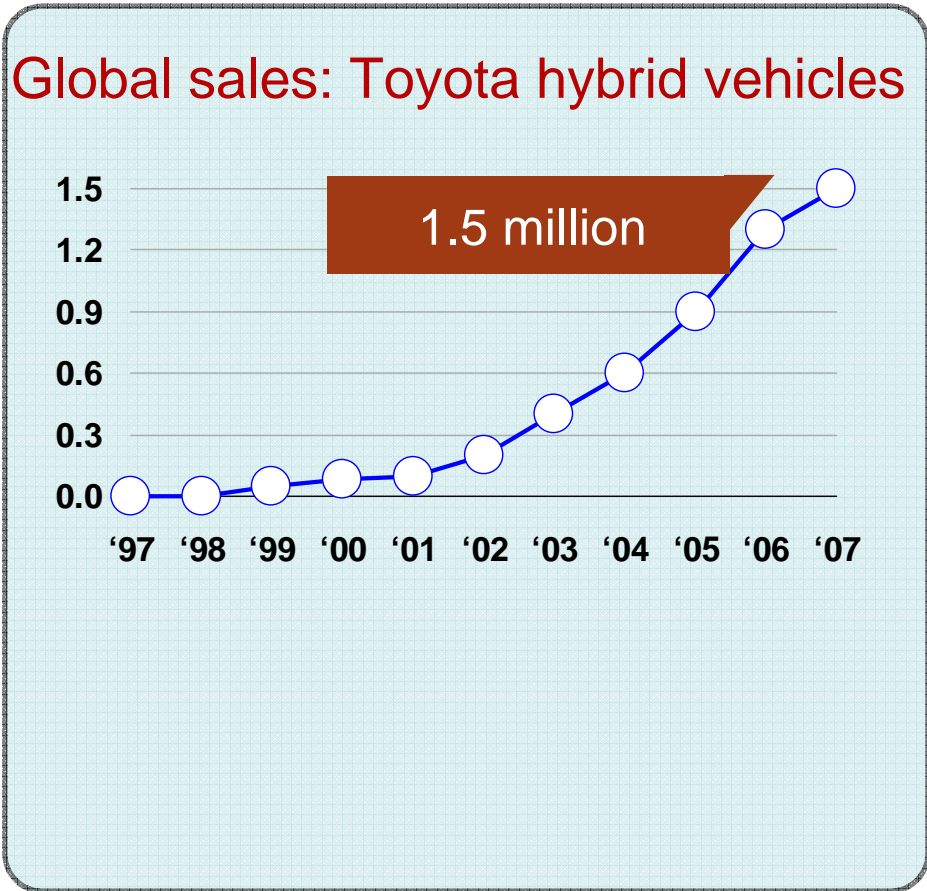
Emerging Issues: Embedded Carbon



Sustainable Products



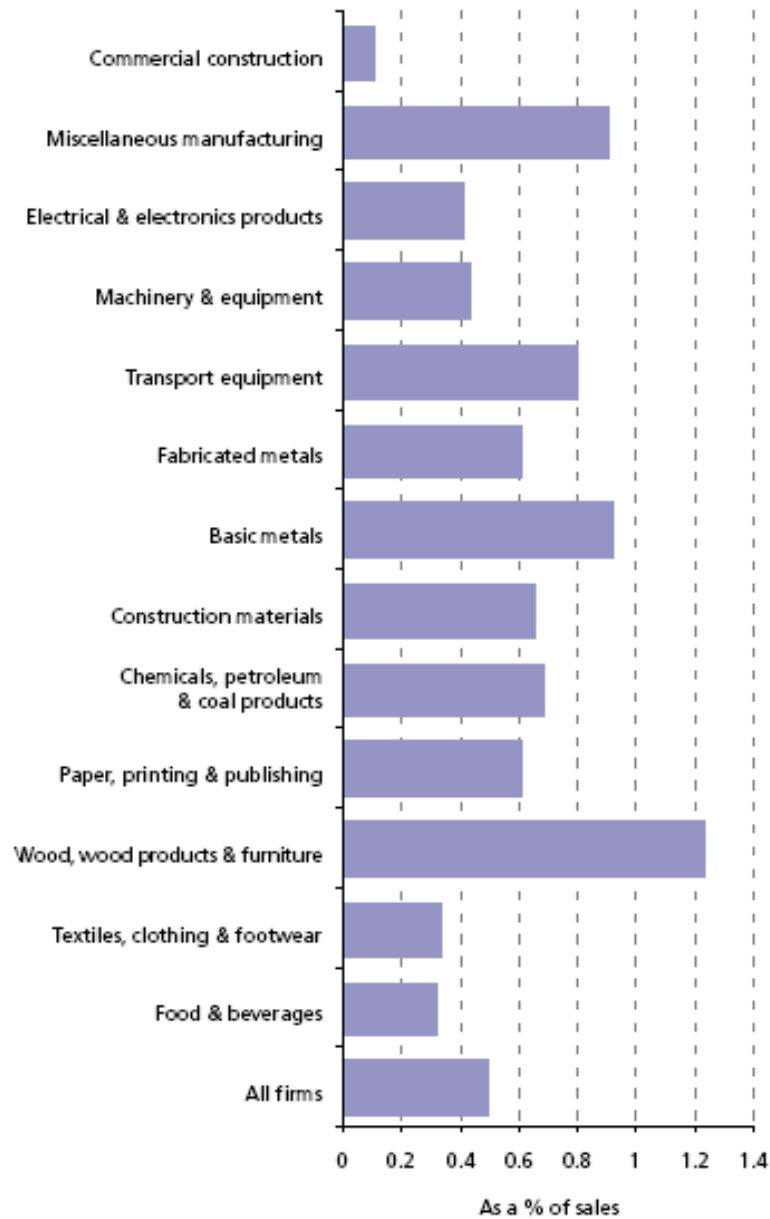
Promoting the Increased Use of Hybrid Vehicles



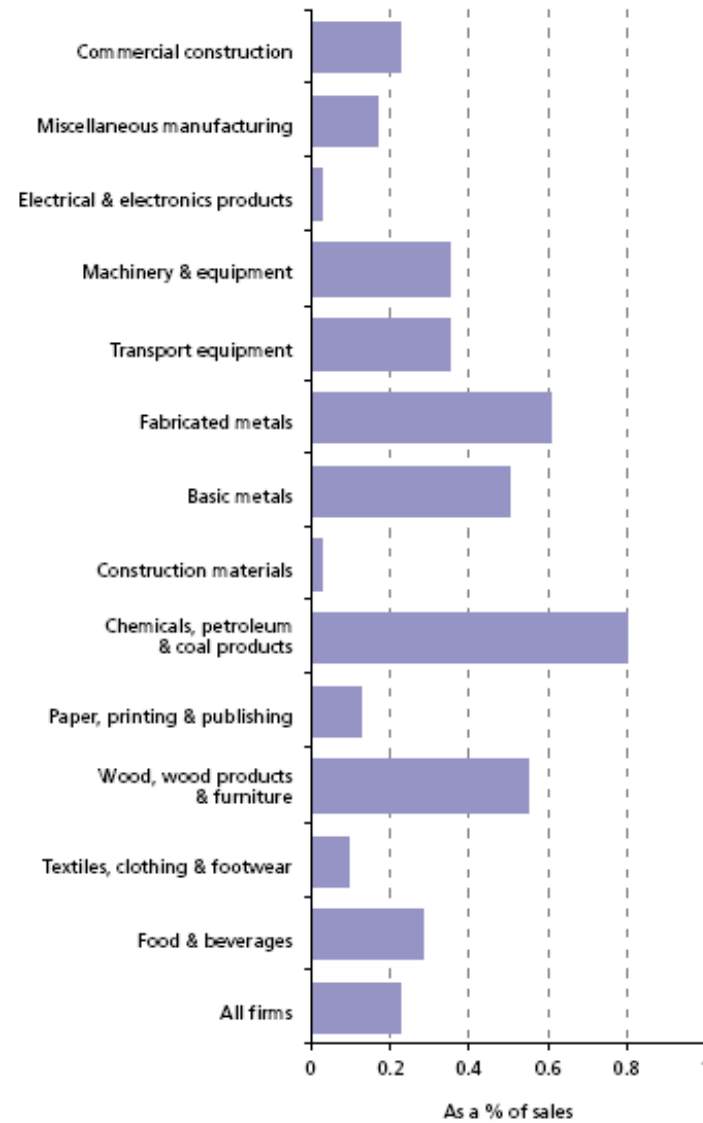
- ➔ CO₂ emissions reduced:
7 million tonnes
- Fuel saved:
2.7 million kilolitres



Electricity costs as a percentage of sales by sector

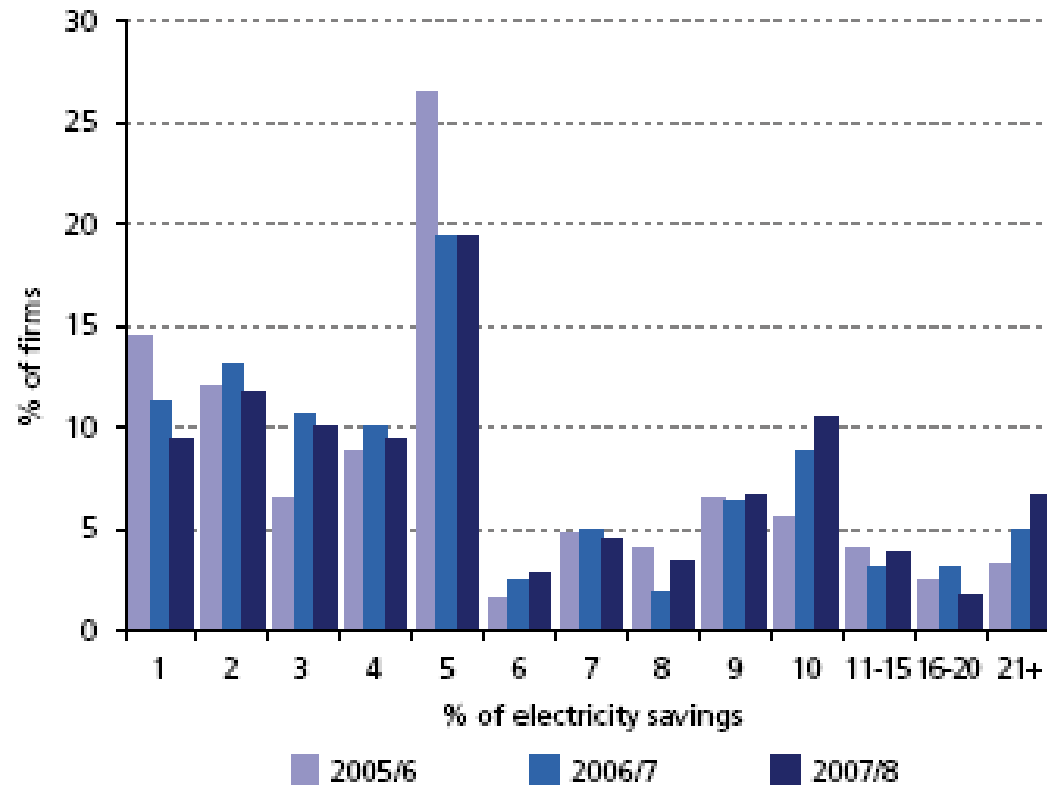


Gas cost as a percentage of sales



Energy savings

Distribution of electricity savings



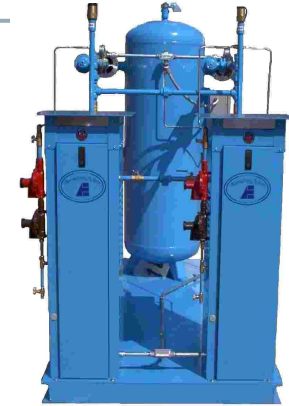
Opportunities in the everyday



Hot Water Boilers & Steam Systems



Pumps & Fans



Compressed Air



Lighting Equipment

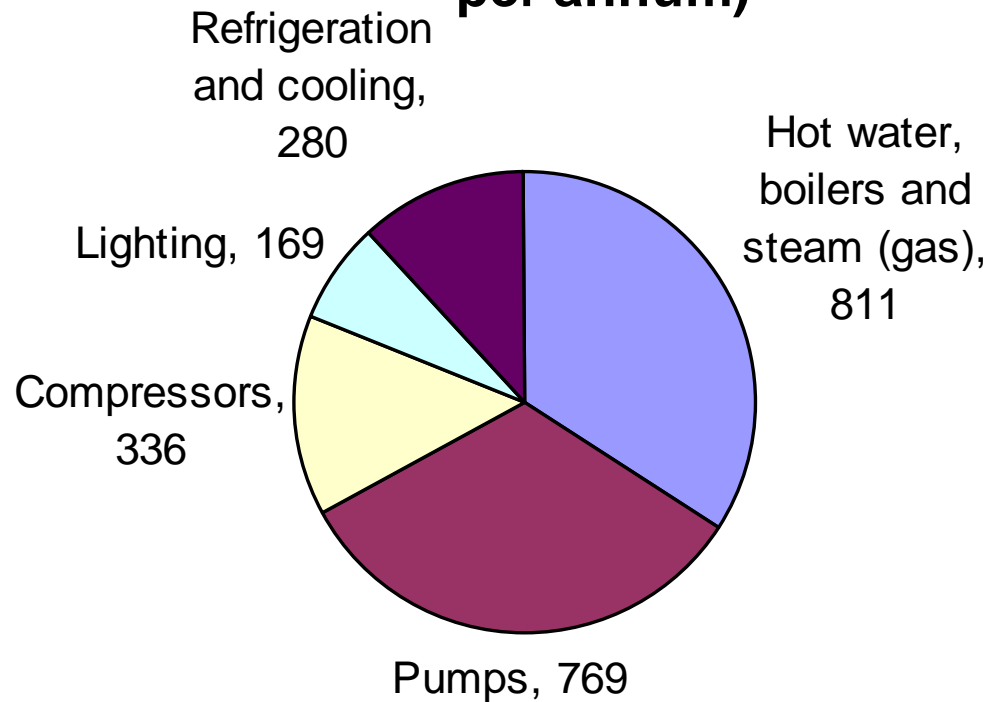


Refrigeration & Cooling Equipment

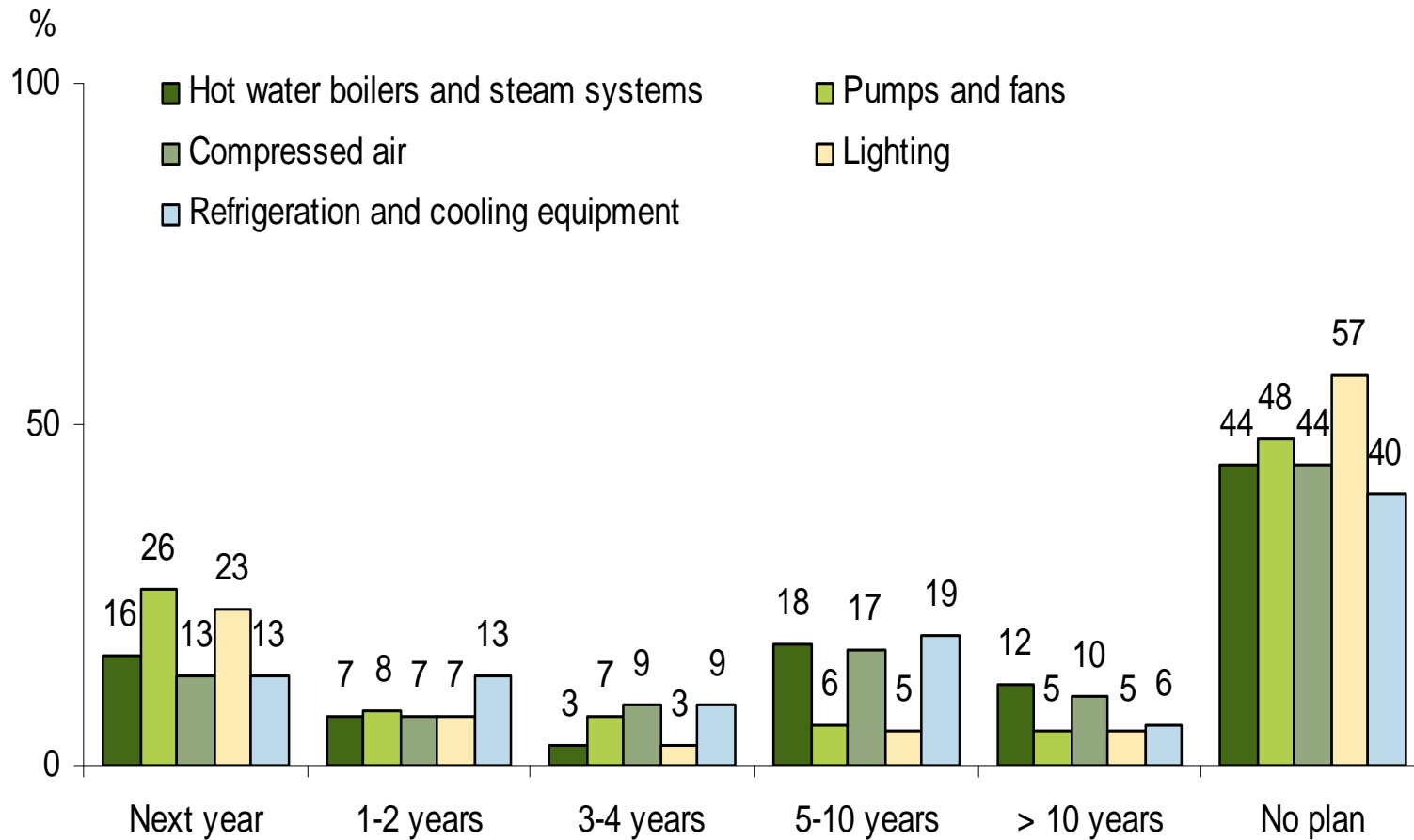


The biggest opportunities are in upgrading boilers and pumps

Potential savings by technology (ktonnes CO2 per annum)



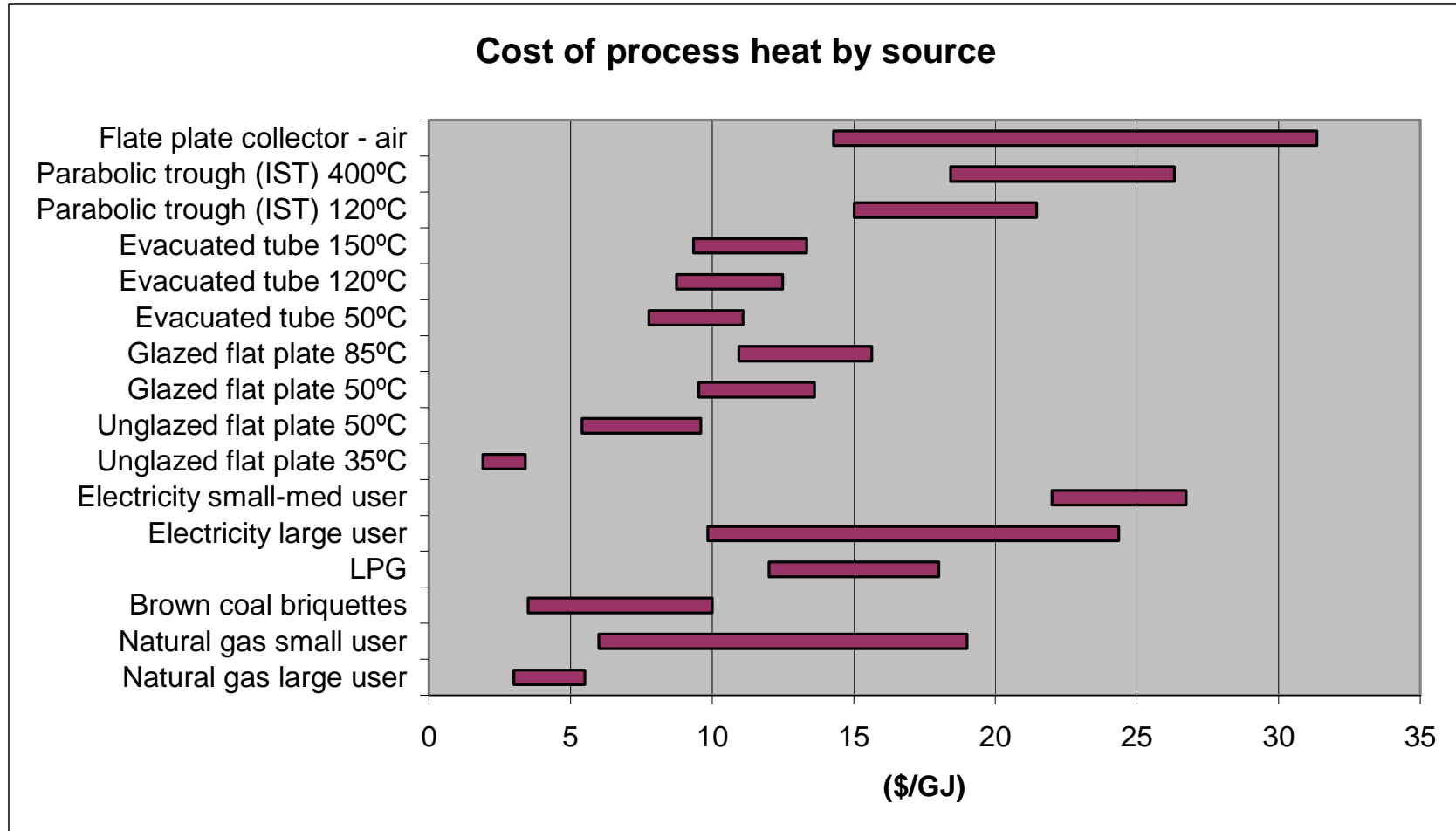
Replacement Plans



Solar Thermal Array – Egypt



Costing process heat- Energetics 2005



CAN'T WAIT FOR TOMORROW



 **TOYOTA**
oh what a *feeling!*