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# The Energy – Climate Change Nexus

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**CHIEF**  
**CSIRO Energy Technology**  
**25 October 2007**



# Energy & Society

**Clean  
Energy**

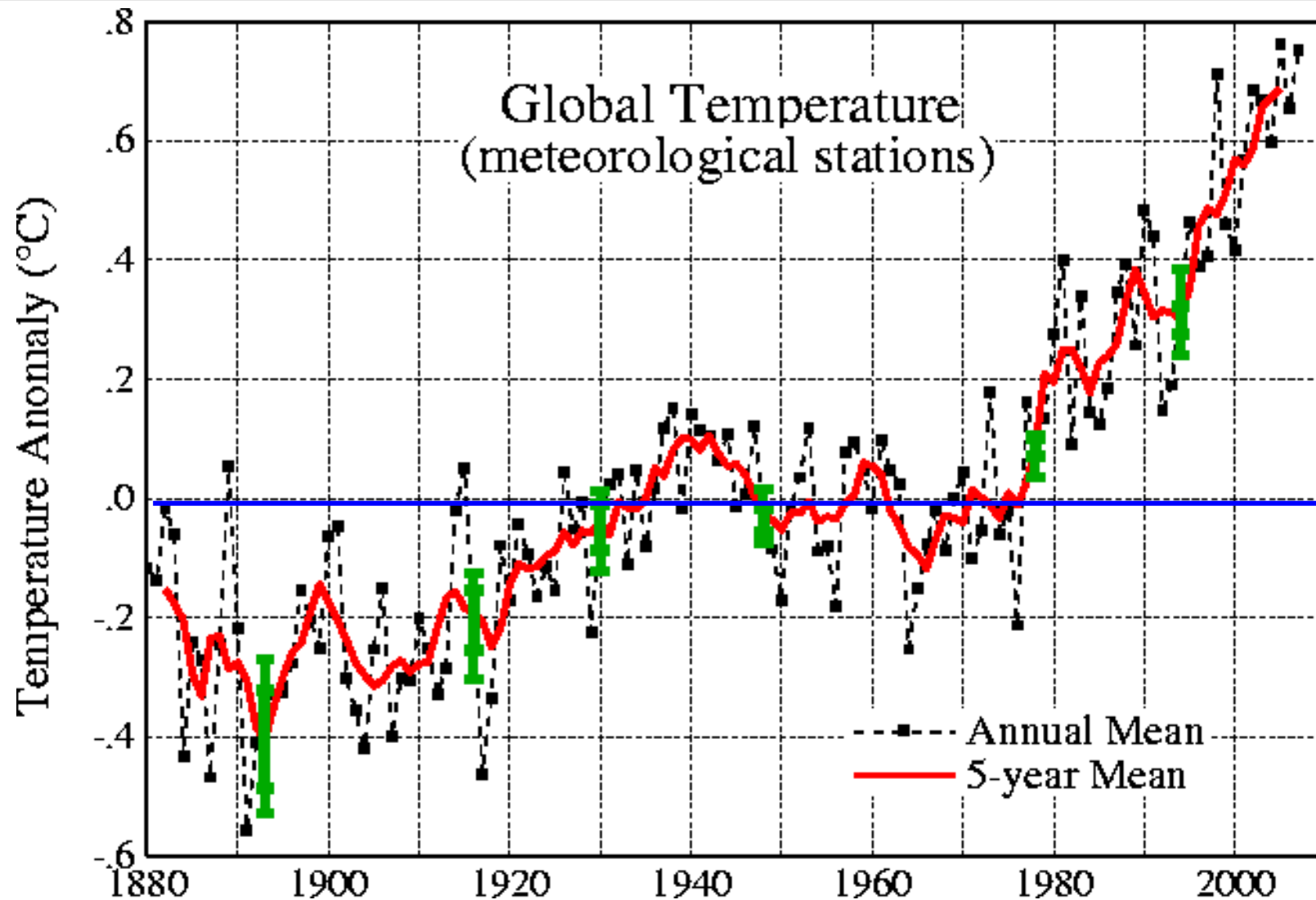
**Energy  
Security**

**Australia  
& Asia**

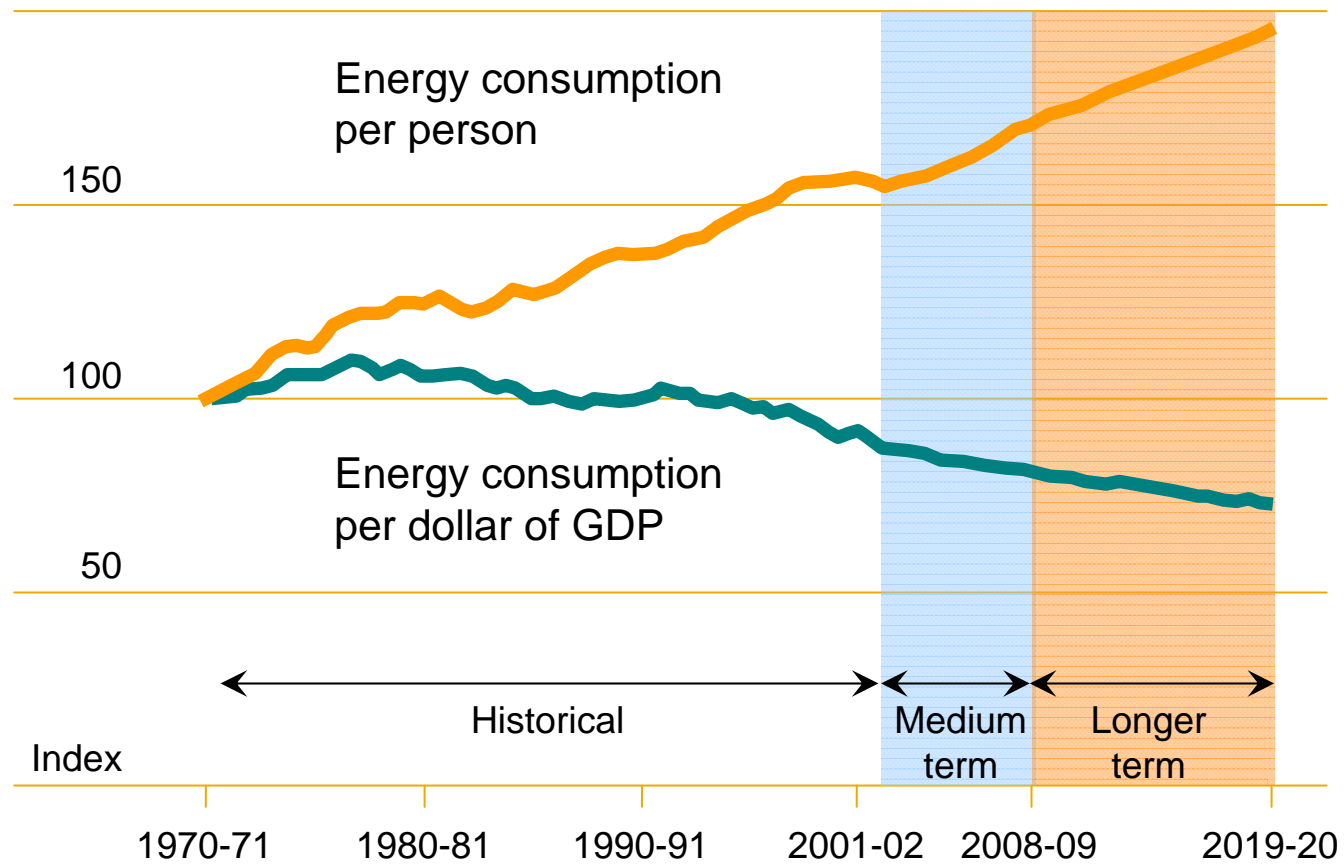
**Wealth  
Creation**

# Global Temperature Rise

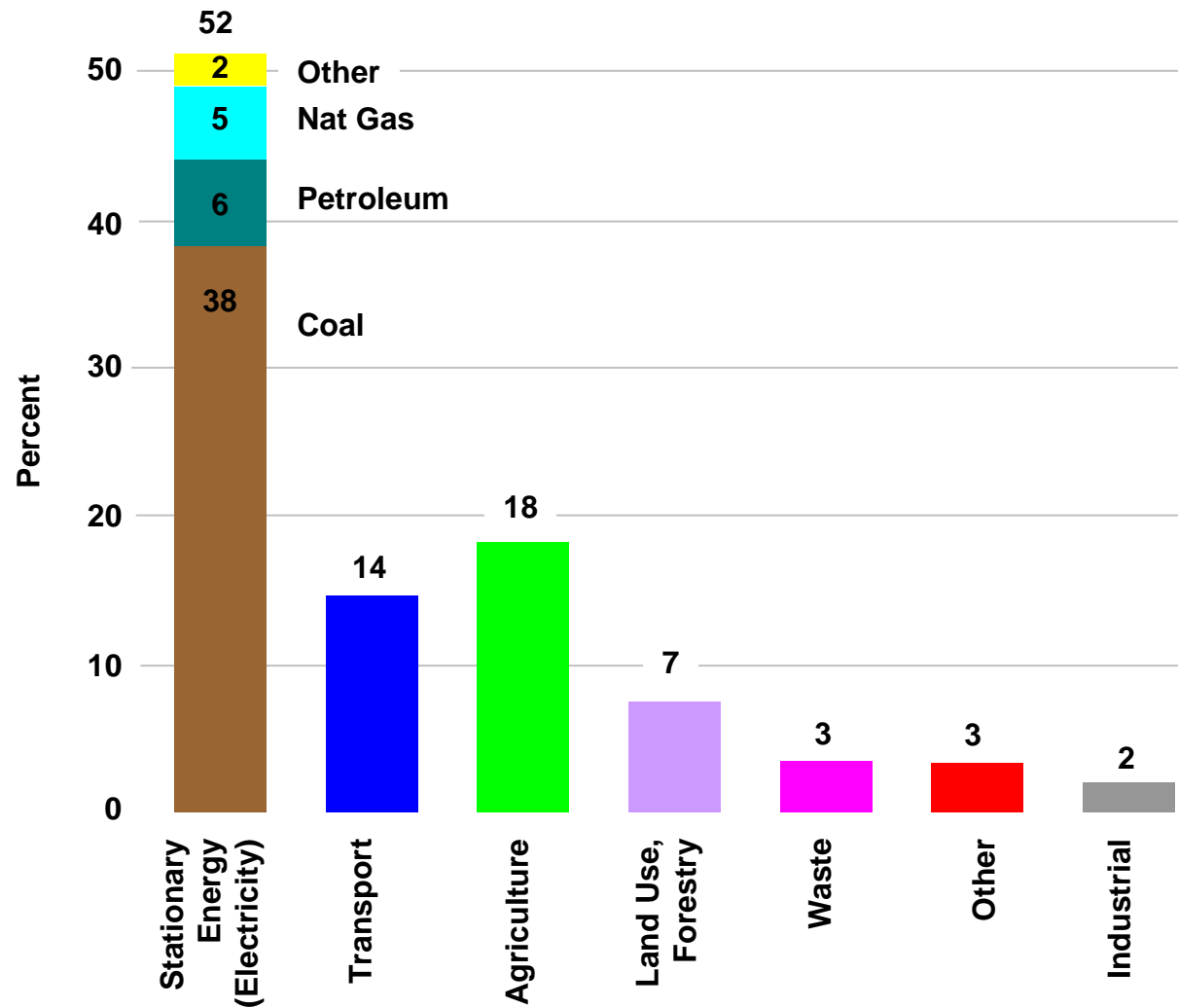
(Temperature Anomalies from 1961 – 1990 Mean)



# Modern lifestyles are energy demanding



# GHG Emissions Sources 2000



Source: AGO (2002) National Greenhouse Gas Inventory

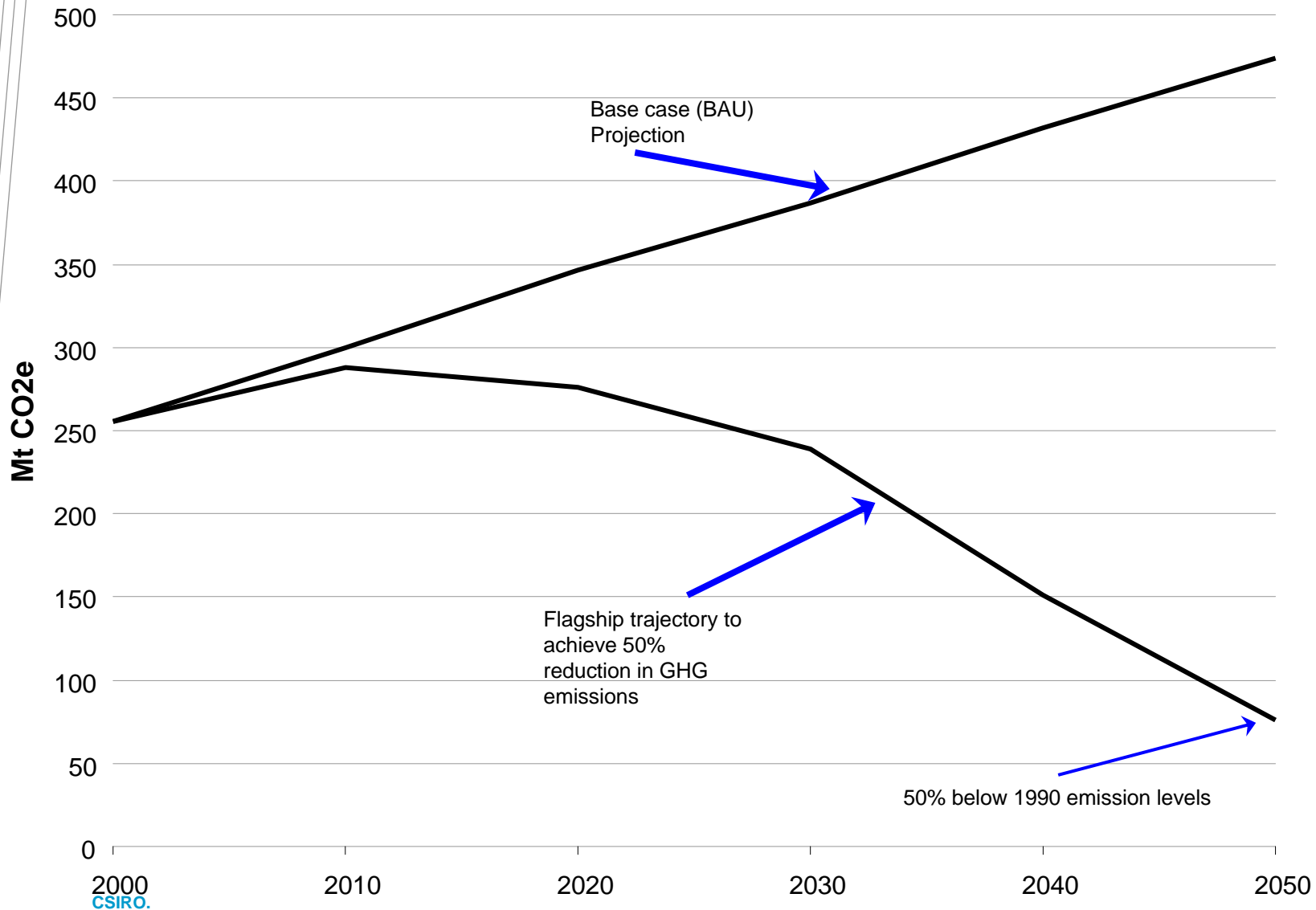
CSIRO



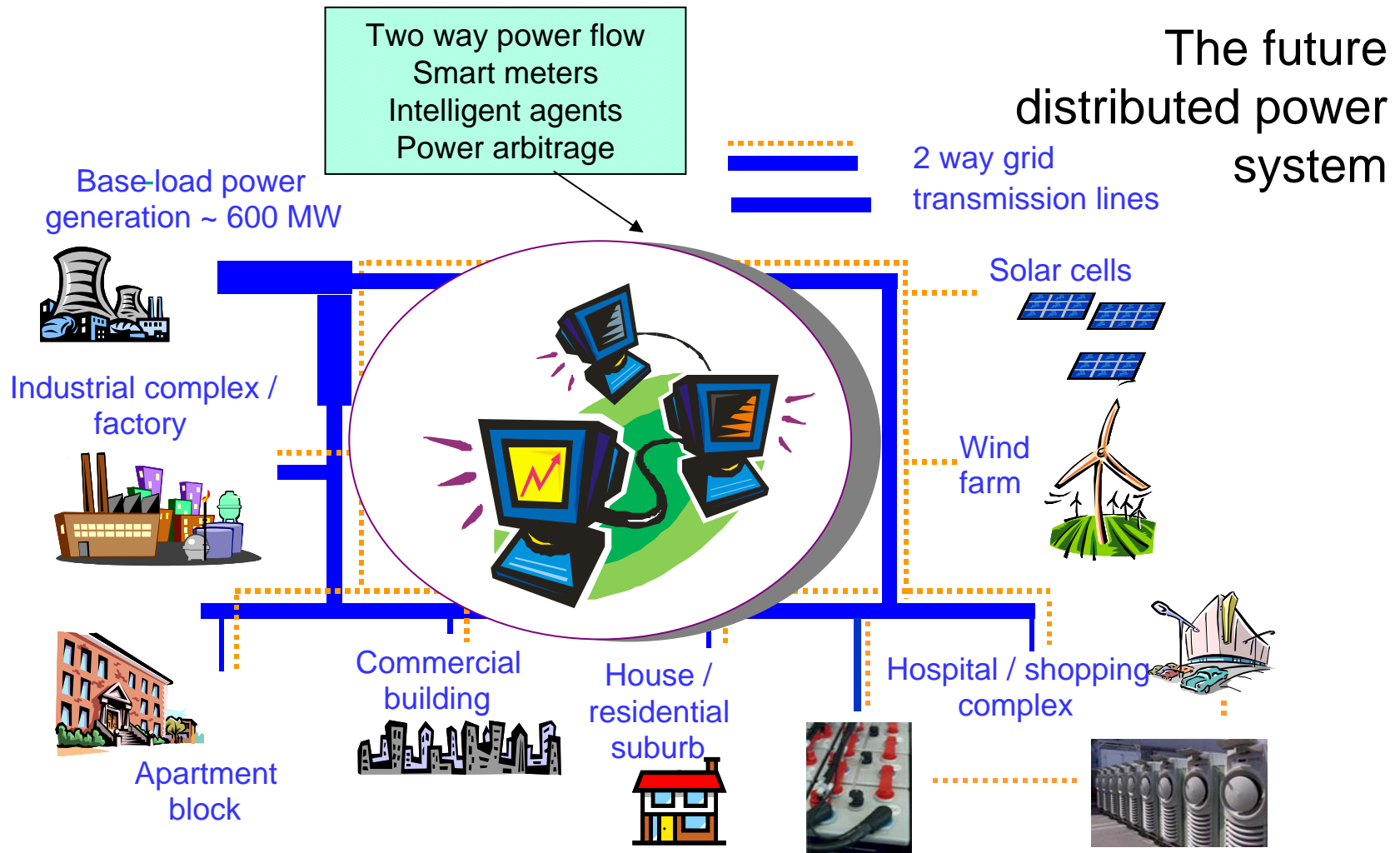
# CSIRO R&D Priority Outcomes

- Cut emissions from energy generation and use
- Increase Australia's transport fuel self-sufficiency
- Enhance the value of Australia's energy endowment

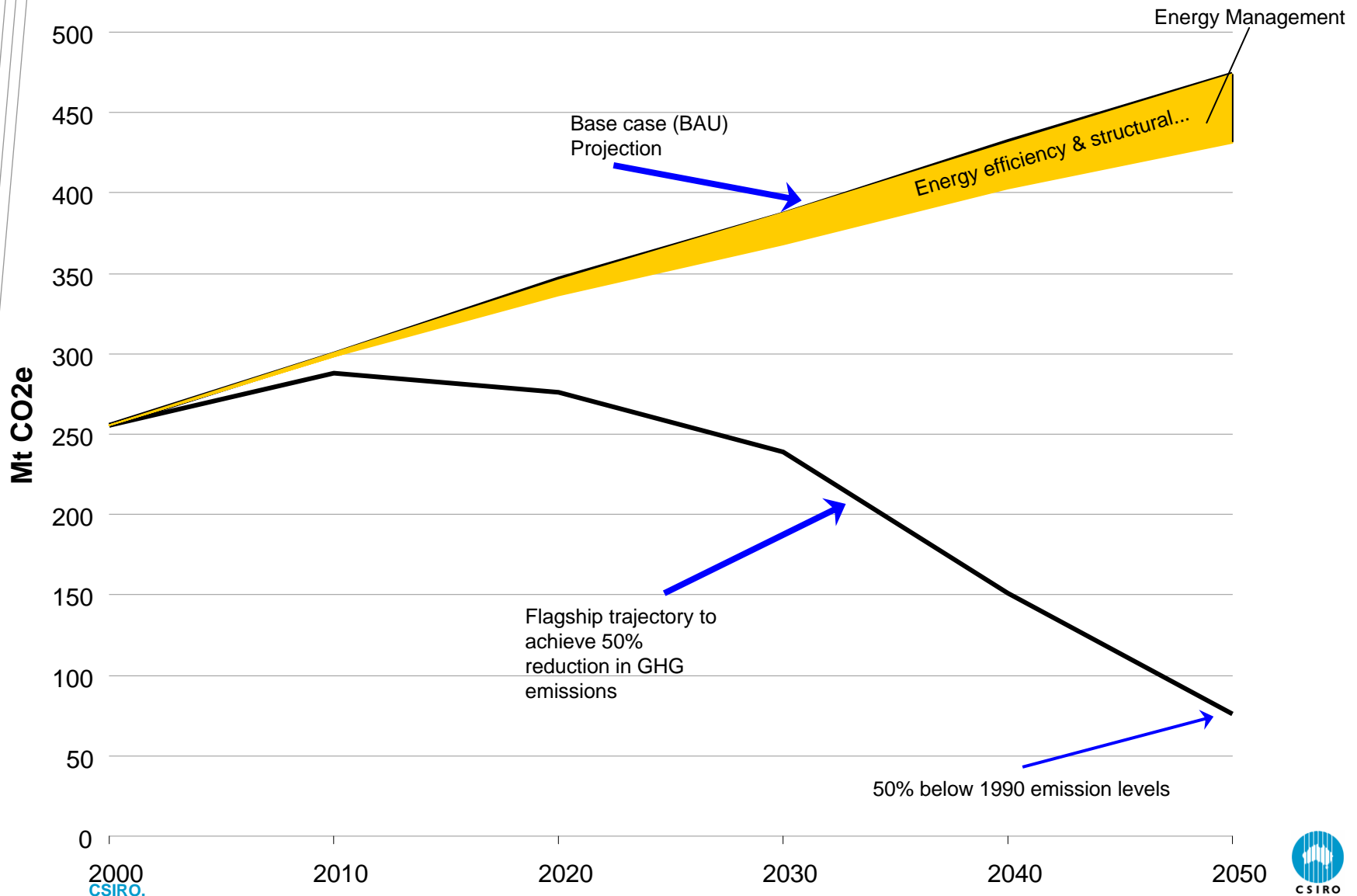
# 50% Reduction in Greenhouse Gas Emissions



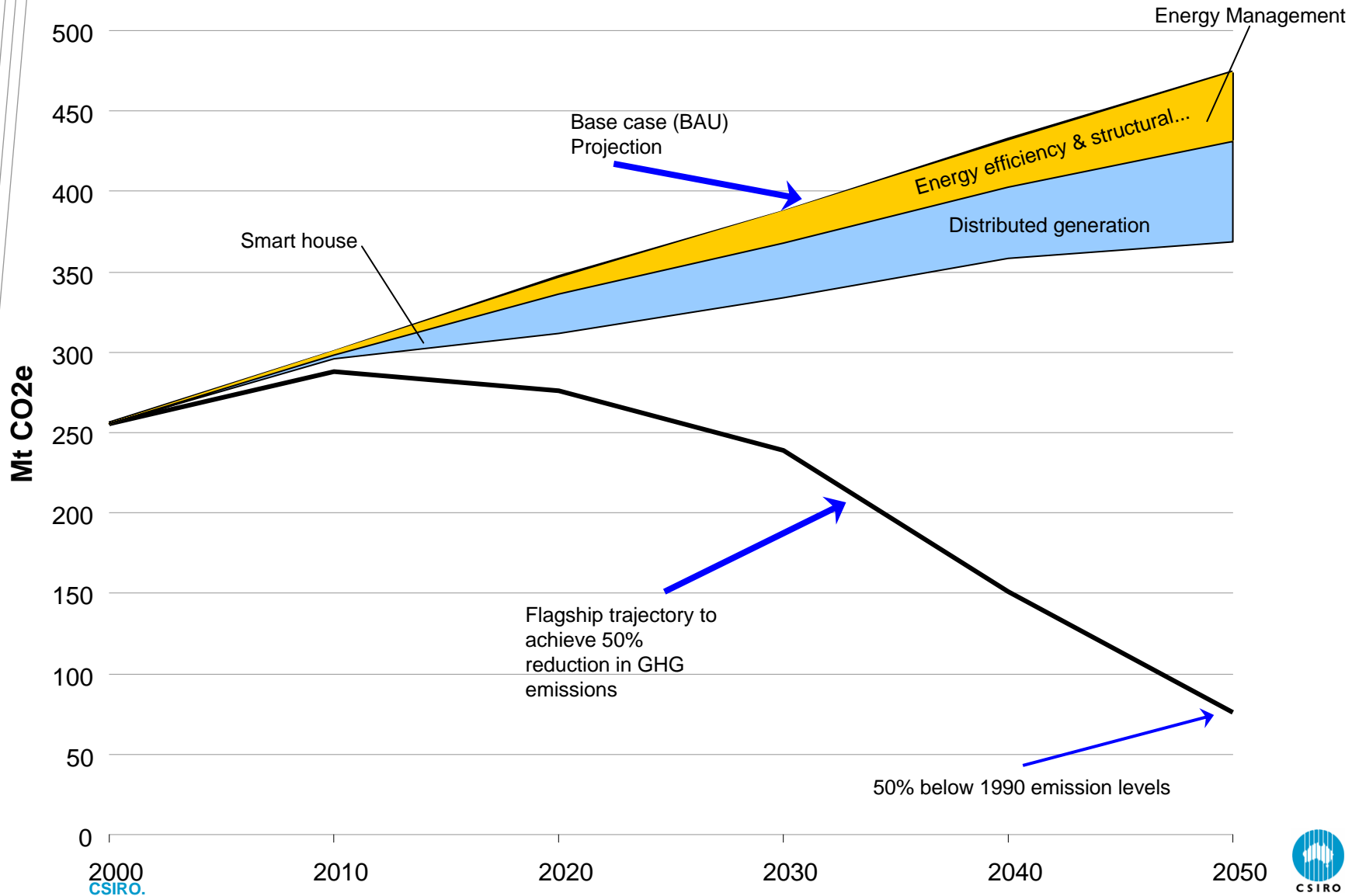
# Distributed Generation and Energy Management



# Energy Efficiency and Energy Management

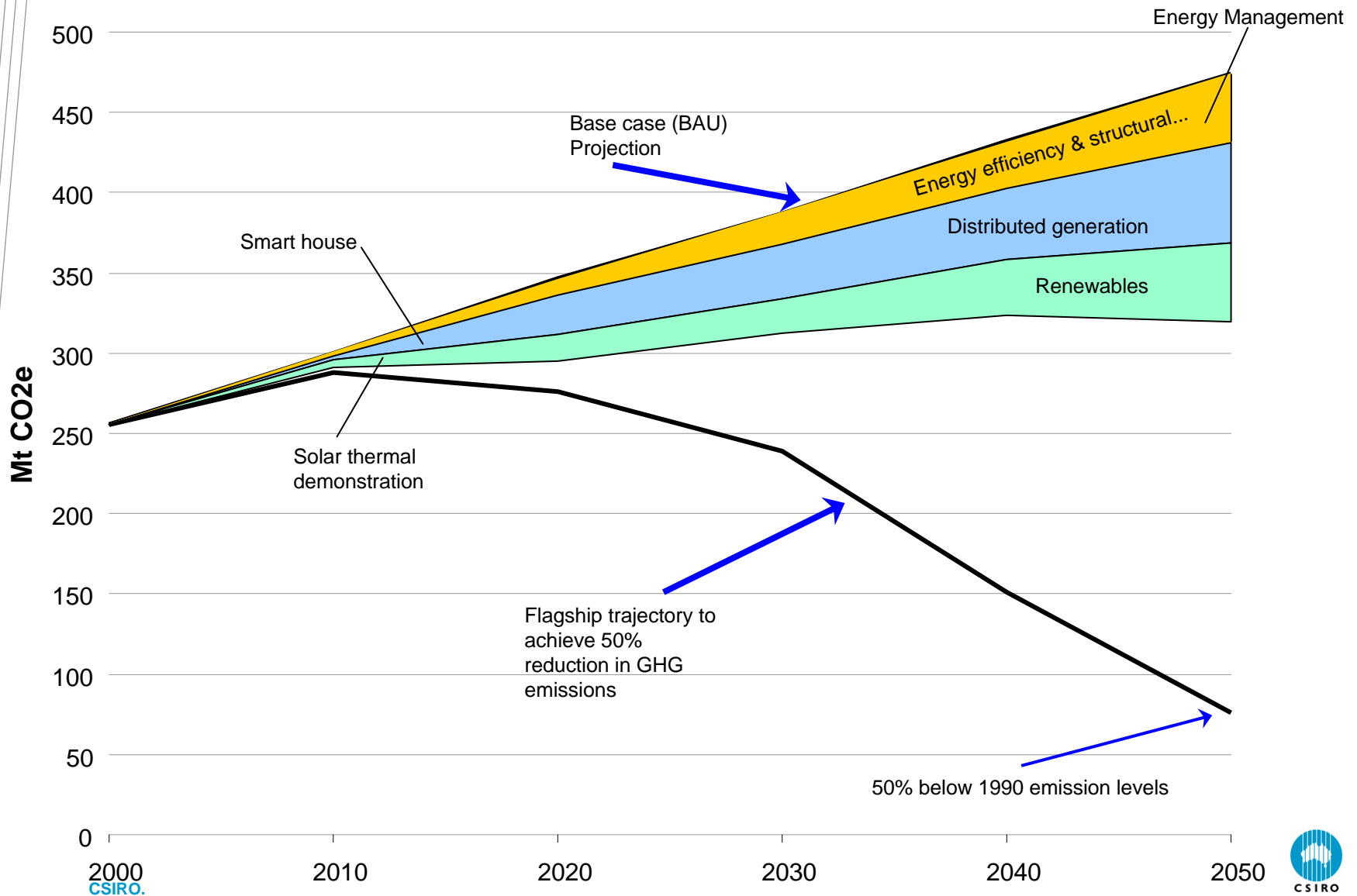


# Distributed Generation

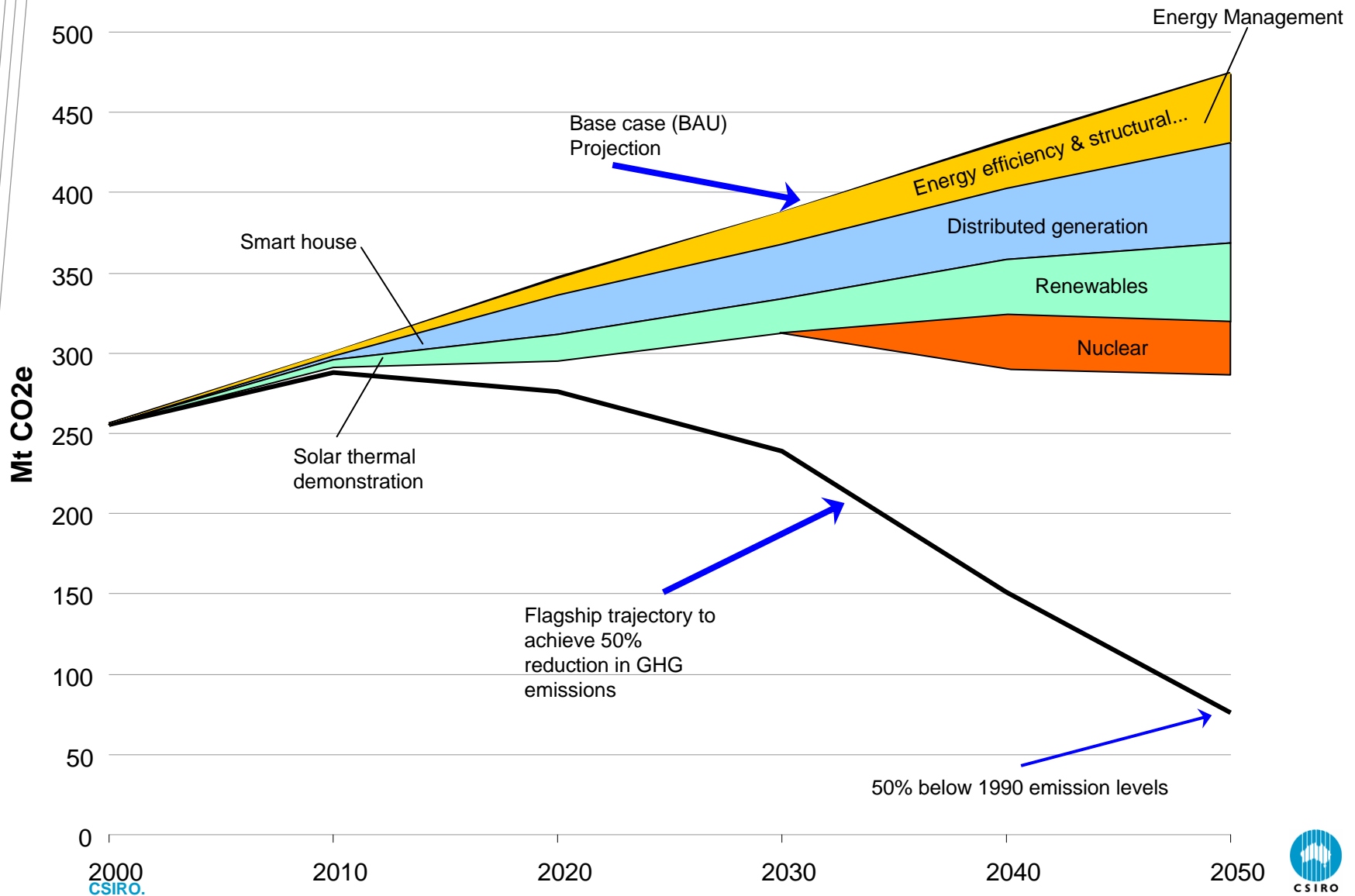




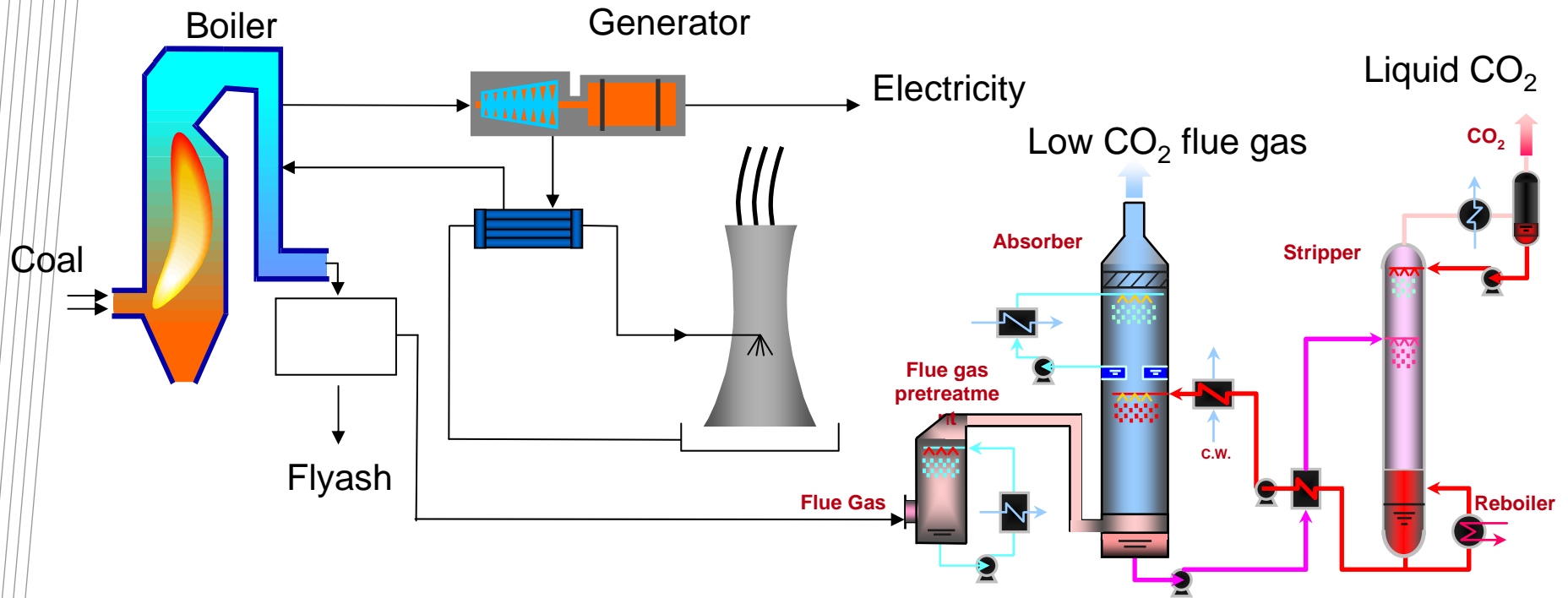
# Role of Renewables



# The Entry of Nuclear

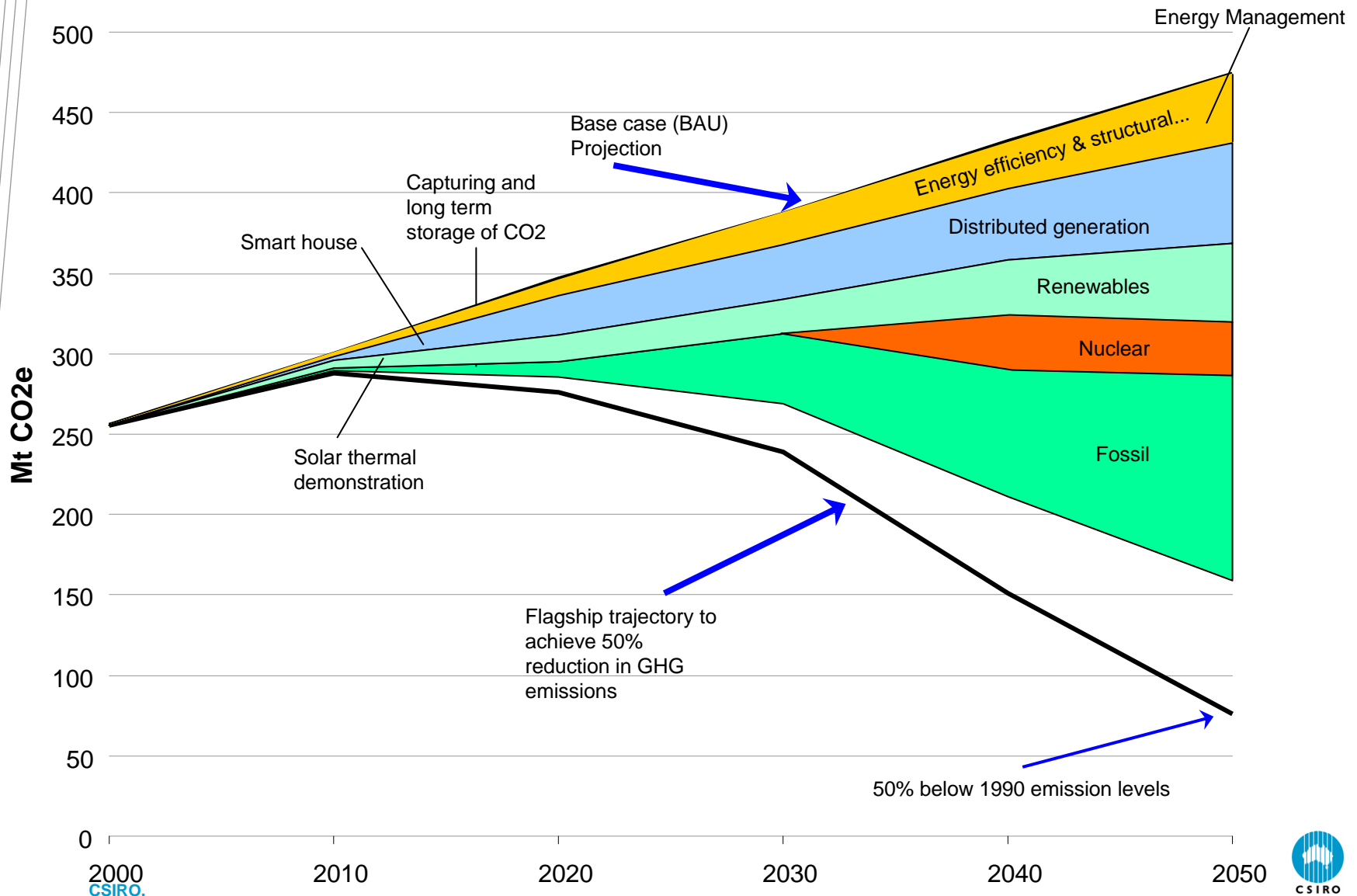


# Cleaner Fossil Fuel Power Plants

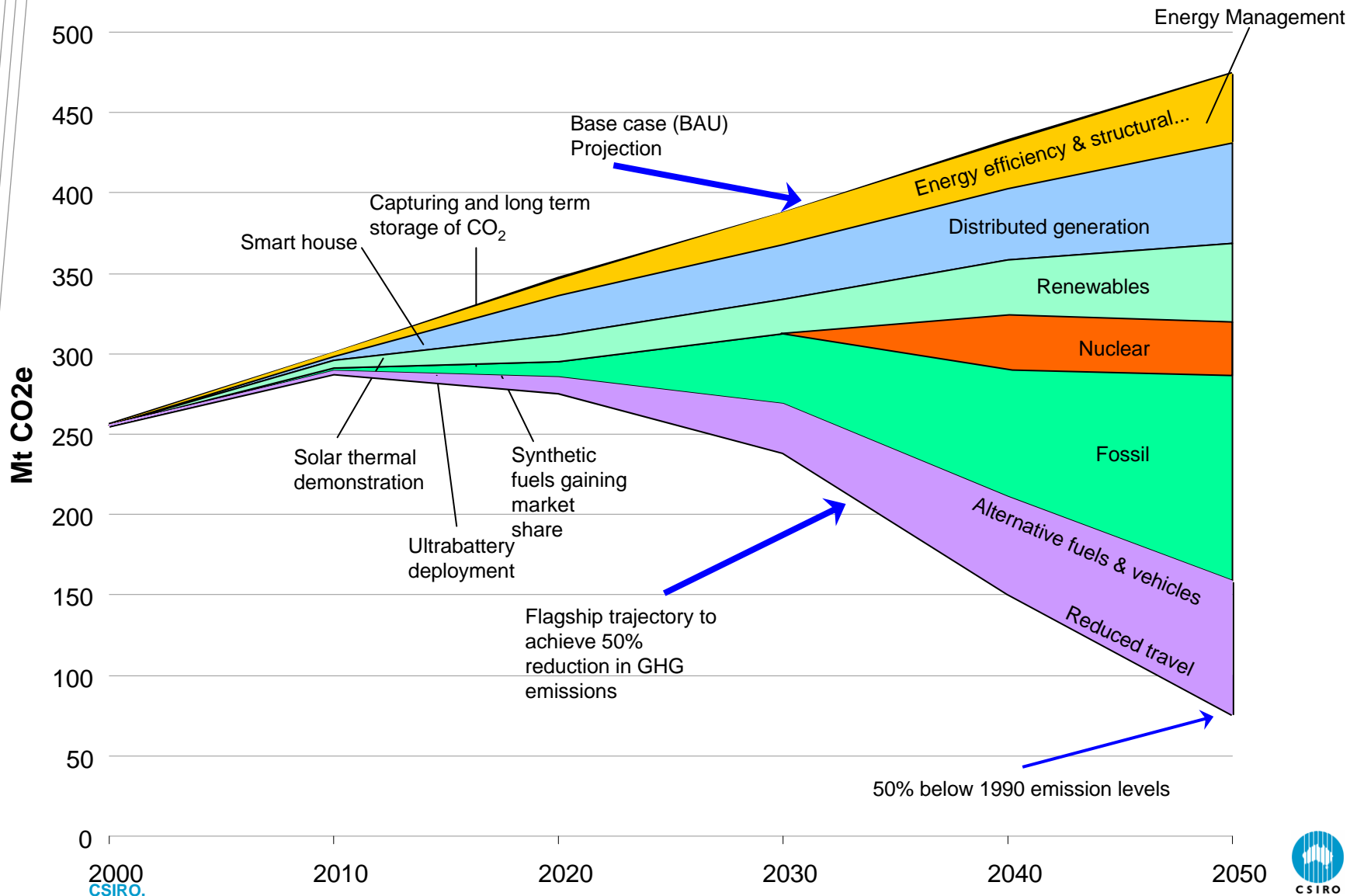


Thermal efficiency 28 - 33%  
CO<sub>2</sub> emissions <100 kg/MWh

# The Major Role of Cleaner Fossil Energy



# More Efficient Transport



# Achievements



**The Heat Is On**  
The Future of Energy In Australia



Energy Futures Forum

December 2008



# Australian R&D Capability is Under Threat

## THE AUSTRALIAN FINANCIAL REVIEW

MONDAY 22 OCTOBER 2007

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### Prepare for the recruitment revolution

The impending chronic labour shortage is no longer just an HR problem, writes **Christine Shewry**.

**A**sk any manager what keeps them up at night and most will say finding and keeping quality people. Sixteen years of uninterrupted economic prosperity that is well in excess of workforce growth has made it increasingly difficult to find and keep talent. This is not an Australian phenomenon, and it's only going to get harder.

Changing demographics are at the heart of the emerging crisis. While our ageing population is well documented, the pace of ageing is less well known. In fact, the impacts of ageing are only just starting to be felt, with the percentage of people aged over 65 on track to increase most rapidly between now and 2012.

While our country grows older, the growth in worker numbers will diminish. According to Access Economics, 140,000 new recruits entered the workforce in 2006-07. By 2020 that number will fall to a meagre 12,500. So if filling newly created roles or replacing departing staff is a challenge now, expect it to worsen dramatically over the next decade.

by a number of hardwired trends; primarily falling fertility, and steady participation and migration rates. Falling average hours worked exacerbates the problem. It's not a worrying prediction, it's an unavoidable reality.

Companies that are hoping immigration will fill the void are likely to be disappointed. The so-called war on talent is not just a local phenomenon; we're competing on a global scale. Most developed nations face the same shortage.

Nearly 20 per cent of the US workforce holding executive, administrative and managerial

positions will retire in the next five years. The UK is facing steadily falling unemployment rates. And by 2009, over 33 million Japanese are expected to be older than 65. Europe is also facing a labour shortage and the European Union is considering introducing a "blue card" (similar to the US green card) to attract skilled labour from outside the region.

This has a number of implications for employers. It's likely that a significant proportion of senior management teams are due to retire

will take a large chunk of corporate history with them. A growing number of workers will need to care for ageing parents. Standard recruitment practices will not yield a satisfactory candidate pool; accessing latent talent will be essential. This will include segments like mothers returning to work or mature-age workers. Responding to the demands of generation Y will also be important.

Investors are also starting to pay attention to this issue. The impact of staff turnover, employee engagement and productivity on profitability is being monitored more closely. As financial markets start to factor

supports, moreover encourages, flexible work practices, particularly in large organisations.

Shifting the culture starts with an appreciation of the benefits to the business. A flexible workplace can support customer service delivery by extending hours. It can help reduce staff turnover and associated costs. Phased retirement plans help transfer knowledge while retaining access to vital skills.

Managers need to be supported in initiating the conversation – start talking to retiring boomers now about phased retirement options or opportunities to mentor younger workers.

Responding to the impending chronic labour shortage will also spark a recruitment revolution. This revolution will force employers to plan for their long-term needs by building talent pools using unconventional ways to source candidates. This needs to happen at all job levels – proactively approaching potential candidates to fill positions from receptionist to chief executive will become increasingly common.

The workforce is changing at an unprecedented pace. Business must evolve to remain competitive.

■ *Christine Shewry is global head of people and culture at Insurance*

**“Addressing these challenges requires a new approach to where, how and when work is done.”**

human capital risk into future performance, chief executives are recognising it is not just an HR problem.

Addressing these challenges requires a new approach to where, how and when work is done, with a focus on outcomes, not hours worked. However, introducing flexibility in the workplace is much easier said than done. It's easy to draft policies that talk about working part time, job sharing and compressed working weeks. It's considerably more