



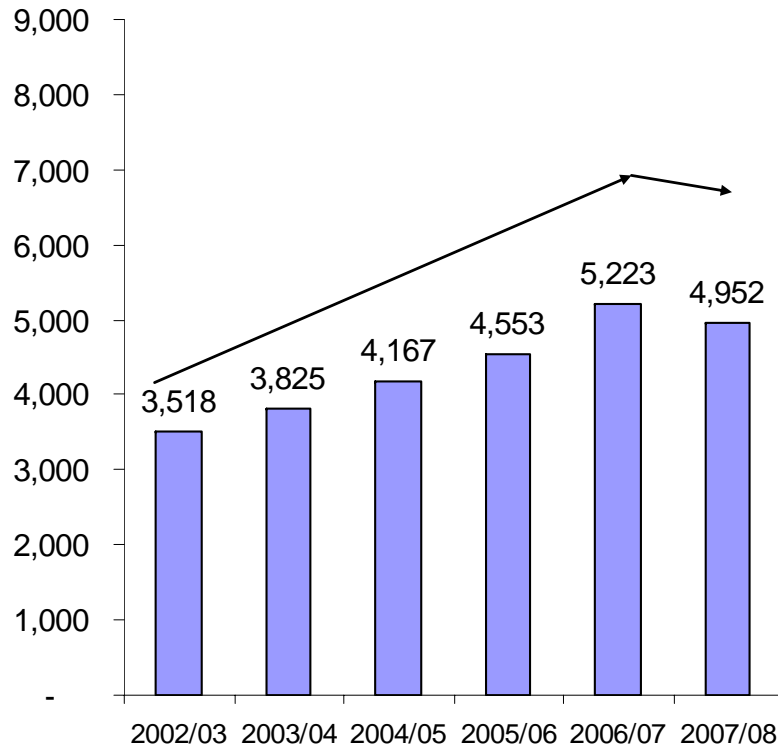
Responding to the challenge of residential energy demand: Blacktown Solar City Program

Maree Zammit, Manager Sustainable Development
23 July 2008

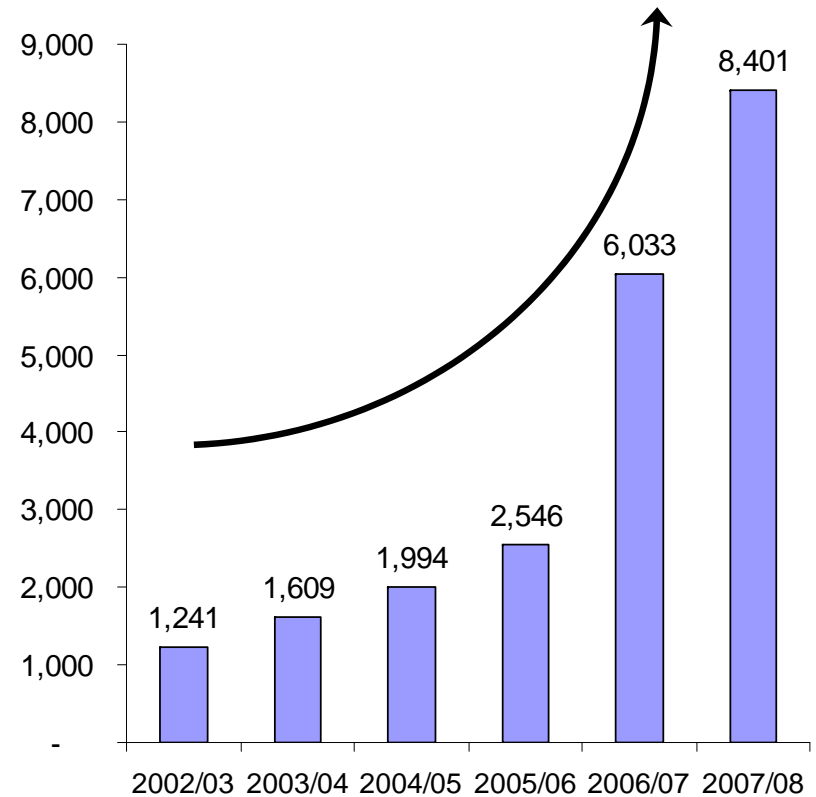
Context and Implications

The spotlight is increasing...

Electricity Articles in AFR



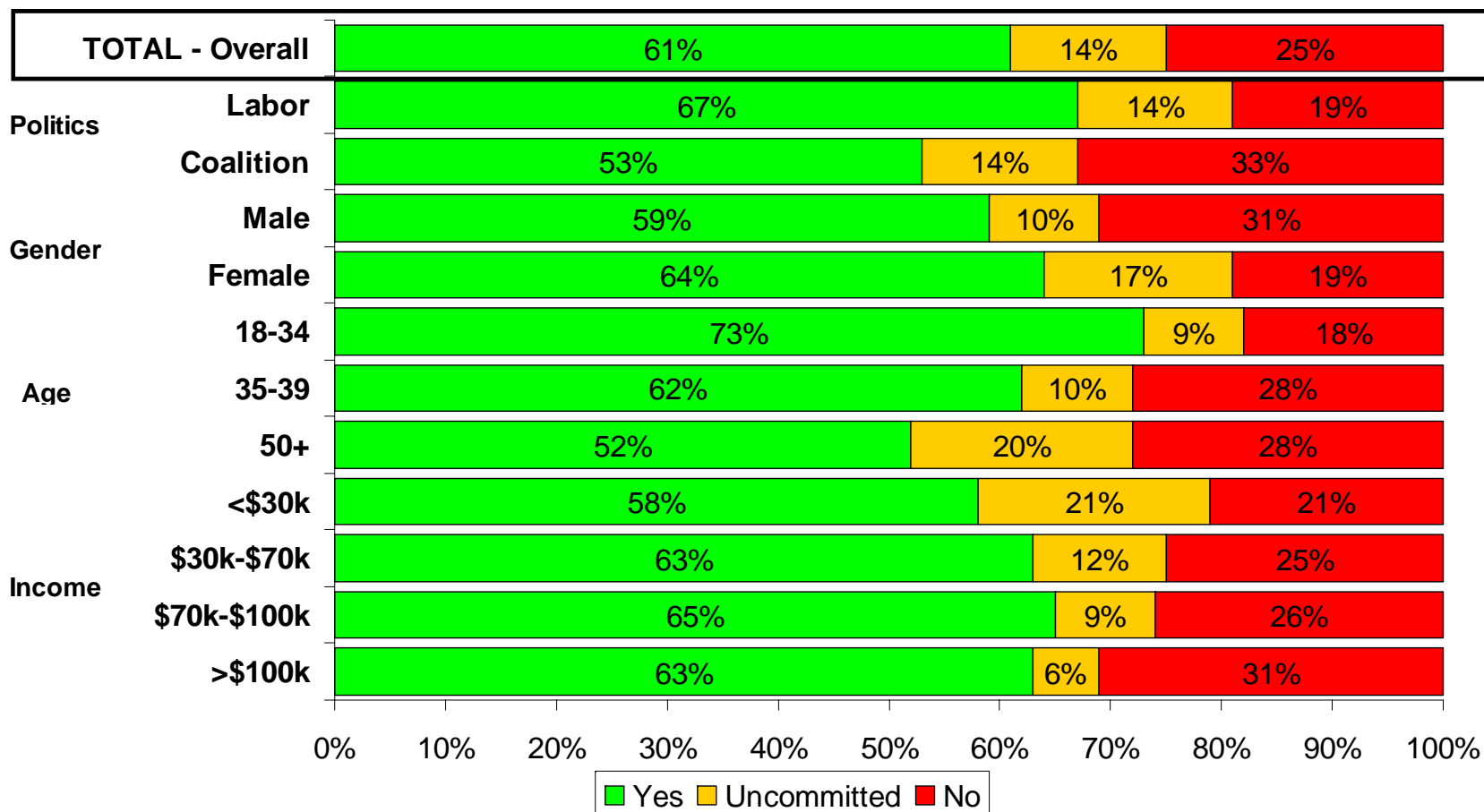
Climate Change Articles in AFR



Source: AFR online analysis

Views on solutions differ across the community

Could a Carbon Emissions Trading Scheme Slow Global Warming?
Newspoll Survey June 2008

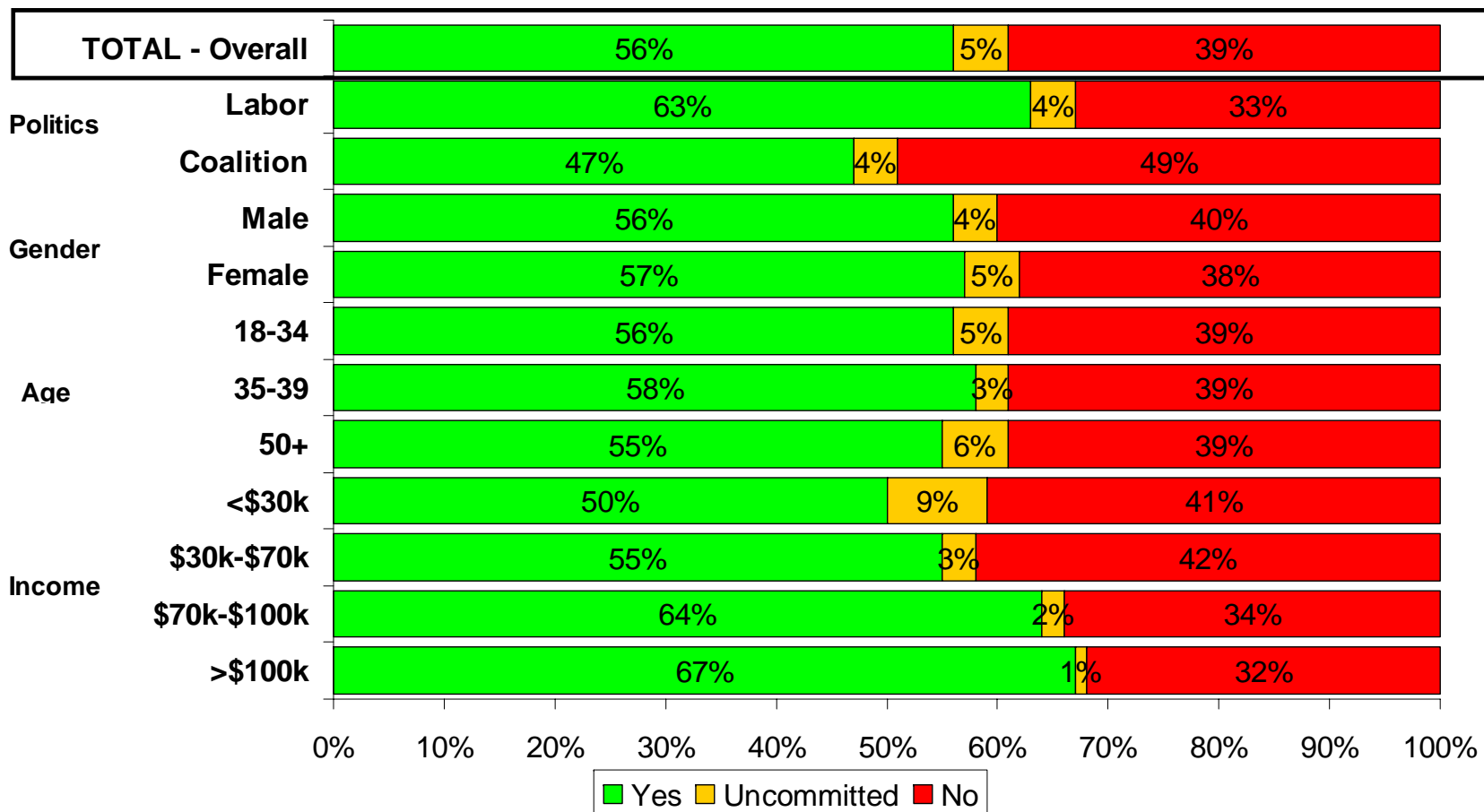


Source: Newspoll / the Australian; survey of 1201 interviews of Australian adults conducted 27-29 June 2008; © Newspoll

Question: Thinking now about the environment, in particular, the idea of a carbon emissions trading scheme. This aims to limit total carbon emissions by giving businesses a permit to release up to a certain amount of emissions. Do you believe a carbon emissions trading scheme in Australia could help slow global warming?

Just over half are willing to pay more for energy

Are you personally in favour of paying more for energy if it would help to slow global warming?
Newspoll Survey June 2008



Source: Newspoll / the Australian; survey of 1201 interviews of Australian adults conducted 27-29 June 2008; © Newspoll

Question: Under a carbon emissions trading scheme, the price of energy sources, such as petrol, electricity and gas may become more expensive. Would you personally be in favour or against paying more for energy sources, such as petrol, electricity and gas if it would help to slow global warming?

Our strategy & trials

Energy Efficiency Strategy

- Holistic management of electricity supply by using demand-side response and energy efficiency as an alternative to supply-side solutions

To ensure enough electricity is supplied, at appropriate levels of reliability and price, while protecting the environment for future generations

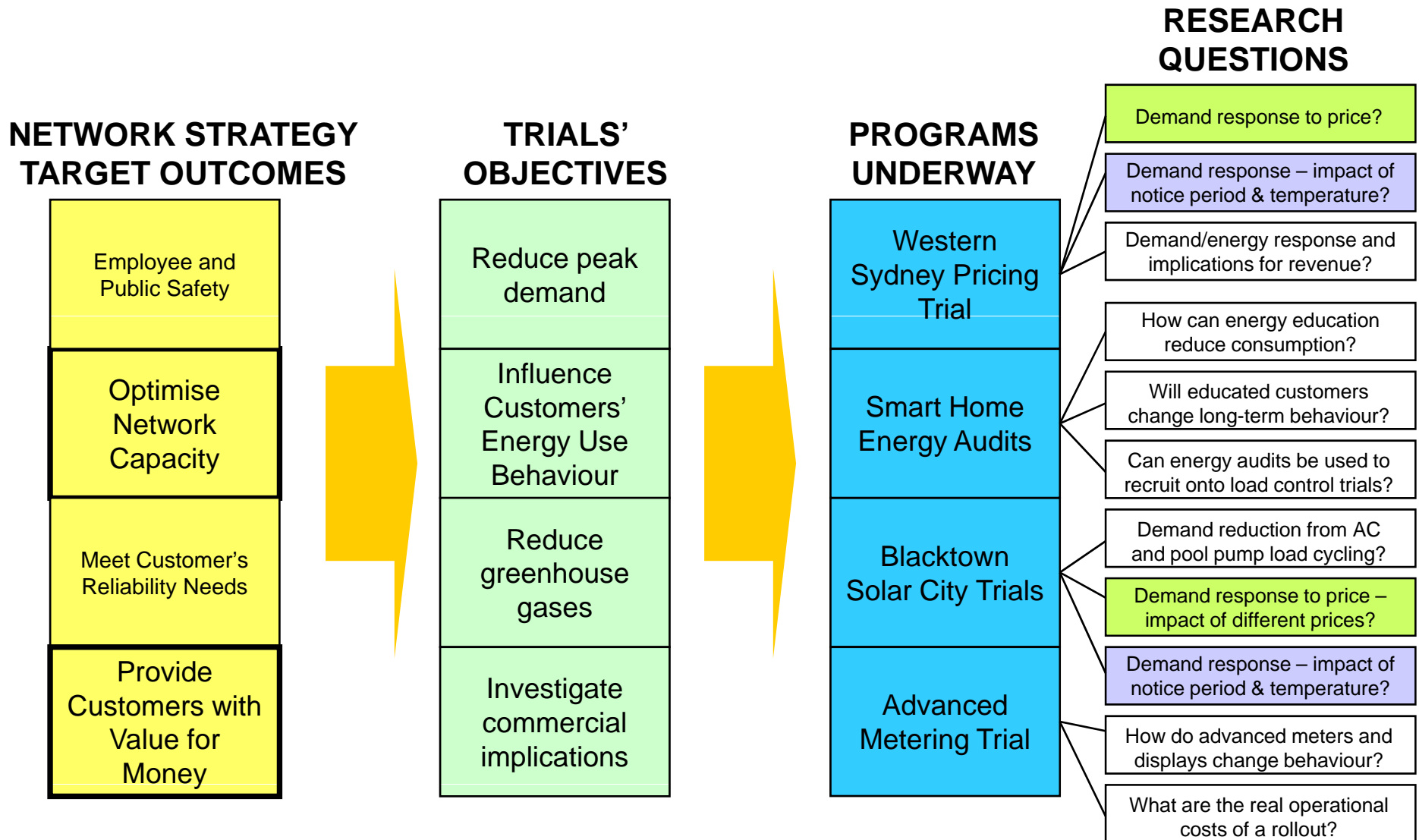
Objectives of our “Energy Saver Trials”

- Reduce peak demand
- Influence customers’ energy use behaviour
- Reduce greenhouse gases
- Investigate commercial implications

We have four Energy Saver Trials underway

- Western Sydney Pricing Trial
- Smart Home Energy Audits
- Blacktown Solar City
- Advanced Metering Trial

Our Energy Saver Trials in context

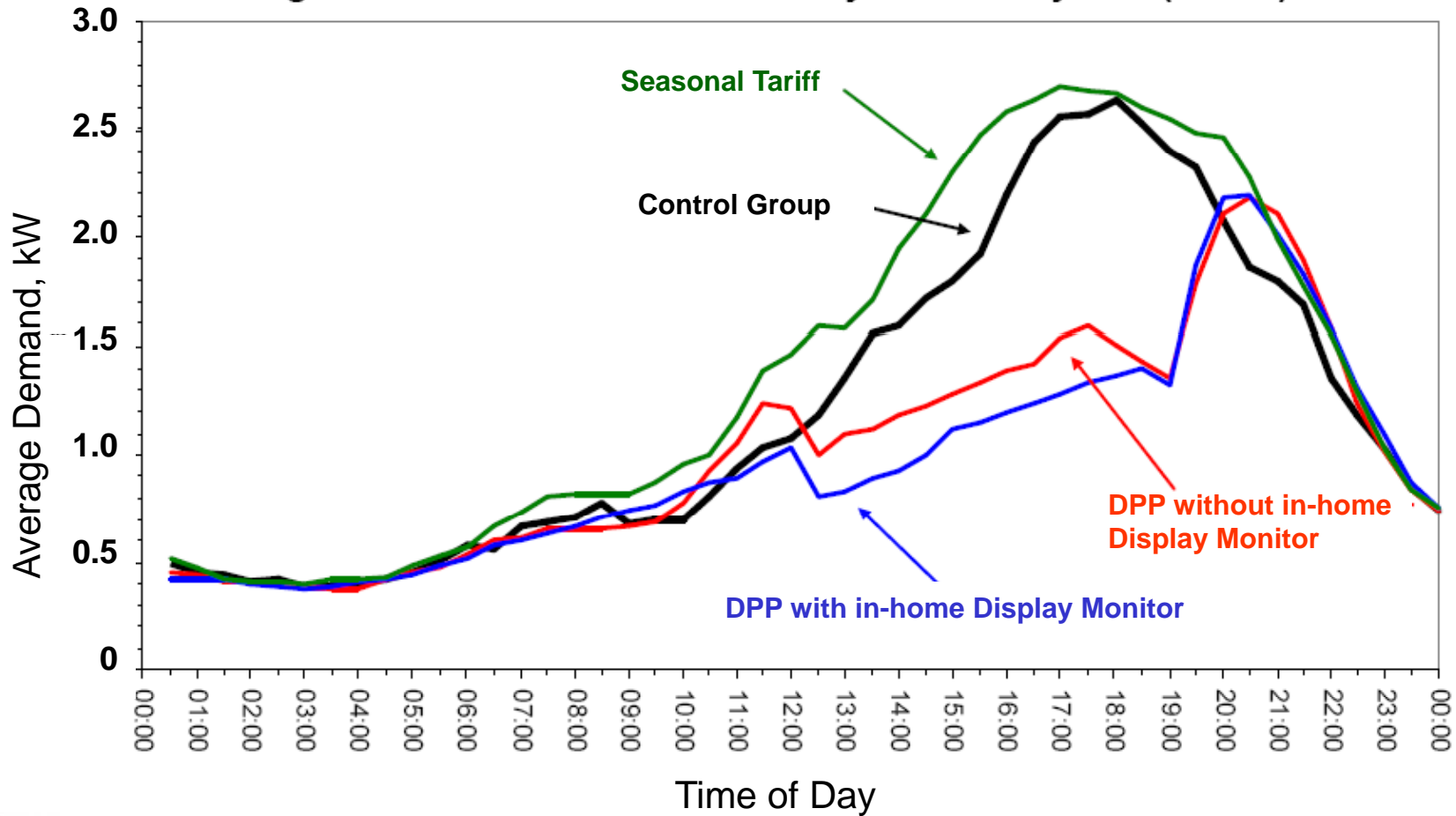


Western Sydney Pricing Trial - design

- Started 1 August 2006
- 1,200 customers on 2 year trial
- Three tariff treatment groups (plus control group)
 - Dynamic Peak Pricing;
 - Dynamic Peak Pricing with In-home display;
 - Seasonal Time of Use;
- \$100 joining incentive and \$200 completion incentive
- Pricing premium – more than ten times higher for 1% of time
- 23 events called to date (1 more due in late July 2008)

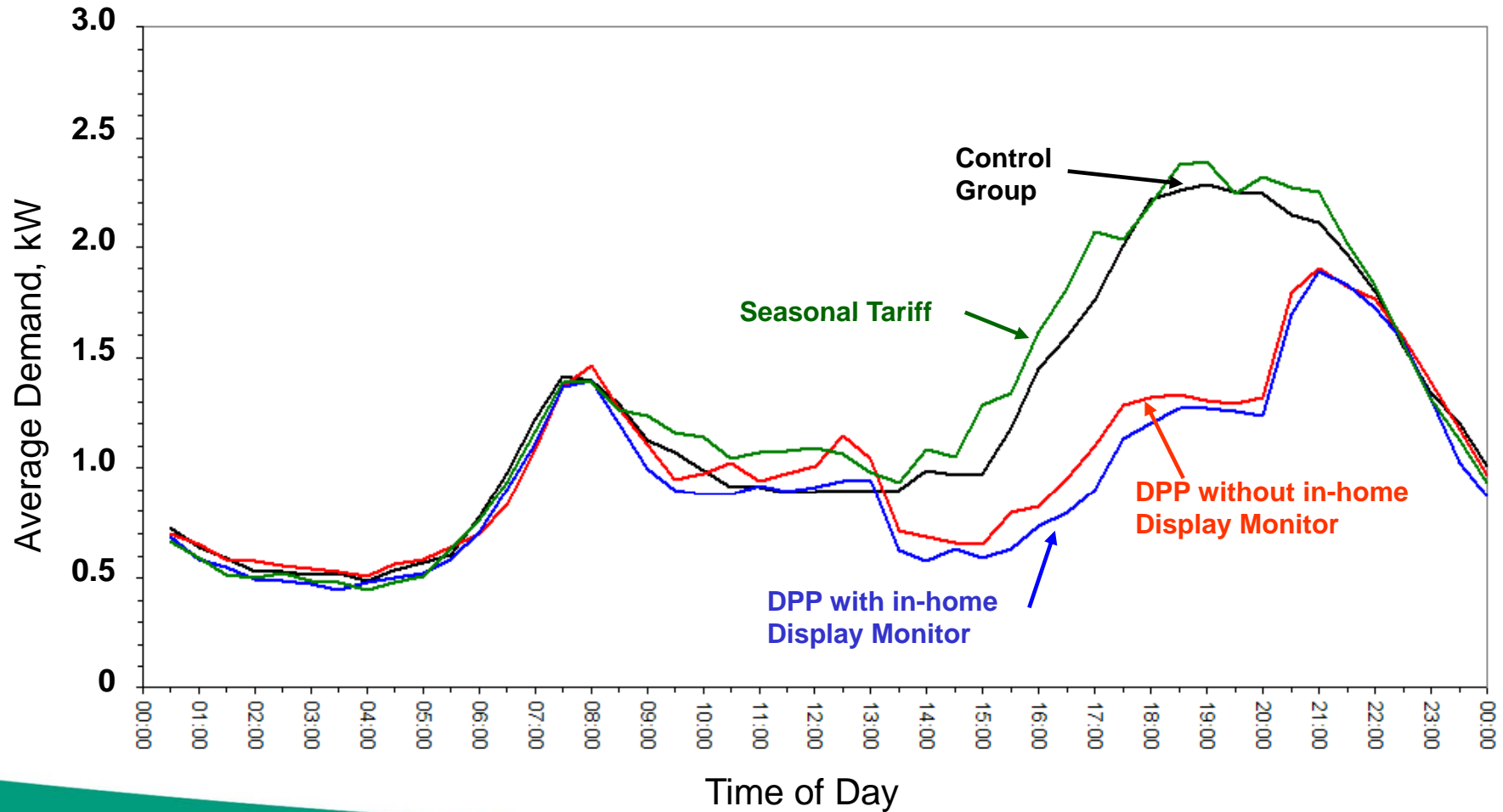
Western Sydney Pricing Trial - results

Average Load Profiles - Hot Summer Day - 11 January 2007 (39.4°C)



Western Sydney Pricing Trial - results

Average Load Profiles – Cool Winter Day – 15 June 2007 (12.2°C)



Western Sydney Pricing Trial – anecdotal customer feedback

- Positive

- “The trial has changed when we use the dryer, do the washing, run the dishwasher, because by doing it in the Off Peak time saves us money”
- “Keeping a note of my weekly/monthly totals gives me a good indication of what my quarterly electricity bill will be” (customer with in-home display)

- Negative

- “Too many events called during winter close to each other”
- Notification on the day of event “doesn’t give time to plan”

Smart Home Energy Audit Program - design

- Began in November 2006
- The *Smart Home Energy Audit Program* was designed to reduce peak demand near two Blacktown substations: Leabons Lane and Marayong
- The program was supported by \$300,000 in funding from the DECC Climate Change Fund
- Audits were one-hour and scheduled day/evening, seven days per week
- Residents were given an action plan, including their NABERS home rating – both the existing rating, and what they could achieve if they implement action plan recommendations

Smart Home Energy Audit Program - results

- 2817 home audits completed to date
- Customers are accepting Action Plan Recommendations...
- ... and therefore they are enjoying savings:
 - Annual cost saving of \$175
 - Annual emissions saving of 1.2 T of CO₂

Action Plan Recommendation	Acceptance by households
Replace standard lights with CFLs	98%
Adjust cooling temp	97%
Increase use of ceiling fans	97%
Adjust heating temp	94%
Turn off television standby power	91%
Use pool pump less	90%
Install draught stripping	86%
Shade windows	85%
Replace standard downlights with EE downlights	85%
Use a pool cover	84%
Use cold water wash only	83%
Install AAA showerhead	82%
Install ceiling insulation	82%
Use dryer less	79%
Turn off PC standby power	76%
Turn off stereo standby power	71%

Blacktown Solar City program - background

- It is a \$37m program over 6 years
- Part of the Australian Government's Solar Cities program
- Consortium partner roles:
 - Blacktown City Council provides community engagement
 - BP Solar provides solar panels
 - ANZ: attractive financing options
 - Landcom: The Ponds development
 - Big Switch Projects: business energy efficiency



Blacktown Solar City program - design



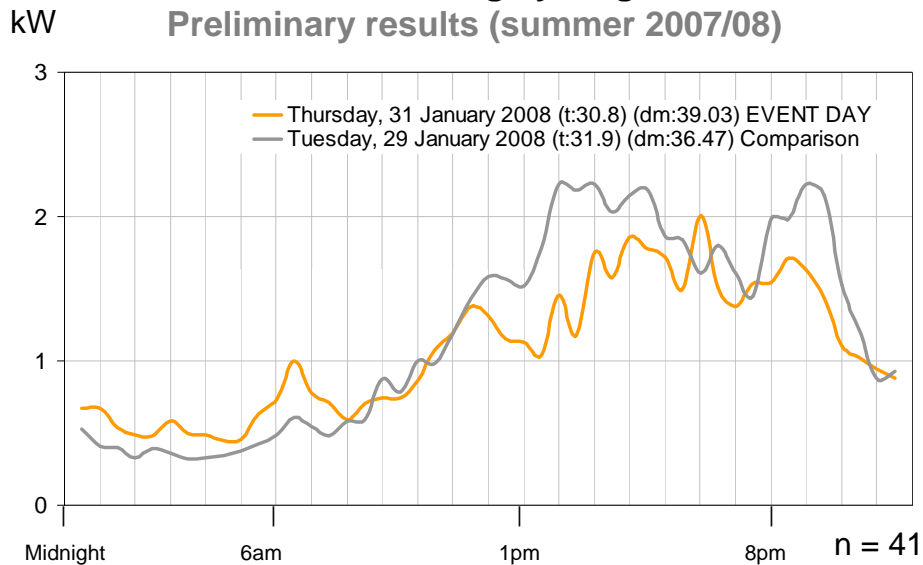
- Launched July 2007 – it is a seven year program
- Integral's role in the consortium is to manage seven of the 15 elements:
 1. Free home energy audits (2,817 conducted to date)
 2. Free energy efficient light globes (8,295 six-packs distributed to date)
 3. Standby Power Reporting (planned for 2008/09)
 4. Air-conditioning cycling trial (two year trial began October 2007)
 5. Pool pump cycling trial (two year trial began October 2007)
 6. Time of use pricing trial (two year trial began October 2007)
 7. Dynamic peak pricing trial (two year trial began October 2007)

Blacktown Solar City results – demand

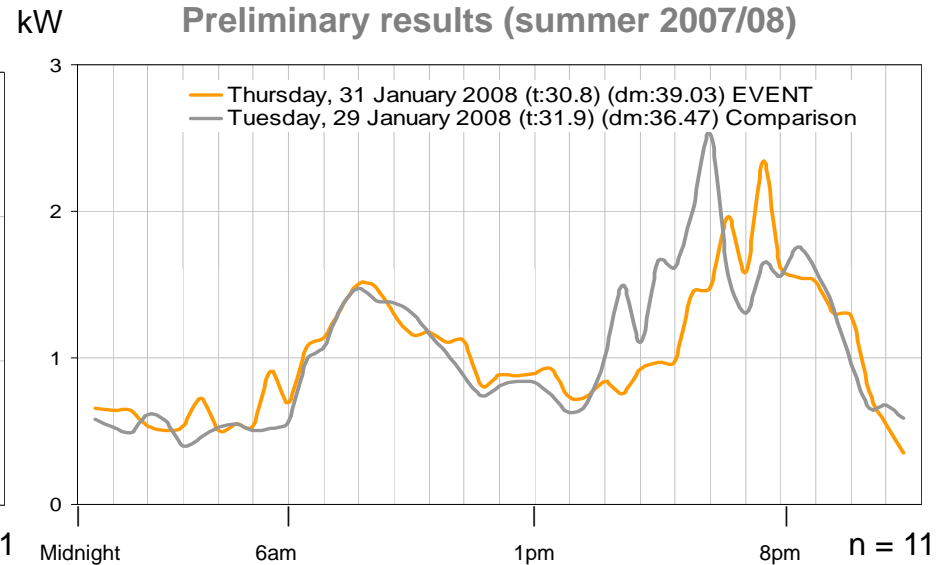


- Pricing trial results very similar to our other Pricing Trials
- Load control trials also showing reduction in demand:

Air conditioning cycling trial
Preliminary results (summer 2007/08)



Pool Pump cycling trial
Preliminary results (summer 2007/08)

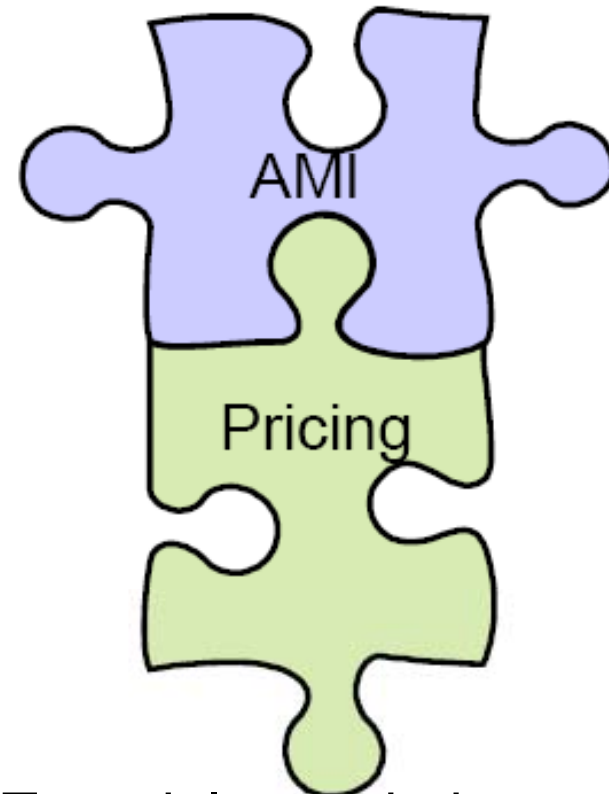


Results – recruitment lessons learned



- Selling these trials is difficult – professional sales people needed
- There is a significant rejection/drop out rate, as need to restrict to A/C and pool pumps less than 7 years old; also meter issues
- Now only using door to door – this channel works best, much improved recruitment results this year compared to last

Advanced metering and pricing trials work together



But is it worth the cost?
Will customers like it?

Two trials needed to
answer the questions!

Advanced metering trial – design

- Trial of 3,000 sites in Blacktown
- Website to provide customers with timely usage information
- Process began late 2006
- In May 2007, we had a complete product recall of one phase meters
- Meter design was refined, meters have been reinstalled



Advanced metering trial - learnings

- Immaturity of technology, as evidenced by the product recall
 - Supporting software is often “vapourware” i.e. doesn’t exist yet
 - Insufficient interoperability
- Significant installation issues for Integral
 - Some sites have insufficient space on meter board
 - More than 80% of boards in NSW contain asbestos
 - Plug in boards need rewiring, thus time consuming
- Contestability poses its own challenges
 - Low cost solutions (ie Distribution Line Carrier) will not work once too many are removed

Trial Next Steps

Benefits of trials

- Both pricing trials achieved strong demand response: approx 40%
- Load control trials also delivering demand reduction
- Energy audits produce measurable change: \$175 and 1.2 T CO₂ pa
- Integral is gathering valuable operational learnings:
 - e.g. Blacktown Solar City: approach to recruitment
 - e.g. Advanced Metering: costs of a rollout

Next steps

- Regulatory Determination submission addresses trials
 - Funding proposed for ongoing trial development
 - Advanced Metering rollout treated as a pass-through
- Western Sydney Pricing Trial to be extended for 1 year (no customer incentive payment)
- Advanced Metering Trial to be enhanced: Mesh Radio technology trial
- Blacktown Solar City Trials in second year: some new AC technology options

Questions?