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DSP3 - The Power of Choice
Role of Pricing and Technology

19 April 2012

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The problem - network perspective

- Load duration and load factor trends

The price signals

- Residential focus
- Past success

Changing and emerging technology

- Hot Water
- Air Conditioning
- Pools

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Demand Side Participation for Networks

The demand management programs being undertaken by the distributors are encouraging and are supported as a means of reducing future demand growth and improving network load factors

Electricity Network Capital Program review 2011 p12

- Complex
  - Location
  - Size
  - timing

- Capacity for the network element on the few peak load days
- Declining load factor - less efficient use of the network
- Current pricing options to reward behaviours that improve load factor
- The technology options to make those behaviours convenient

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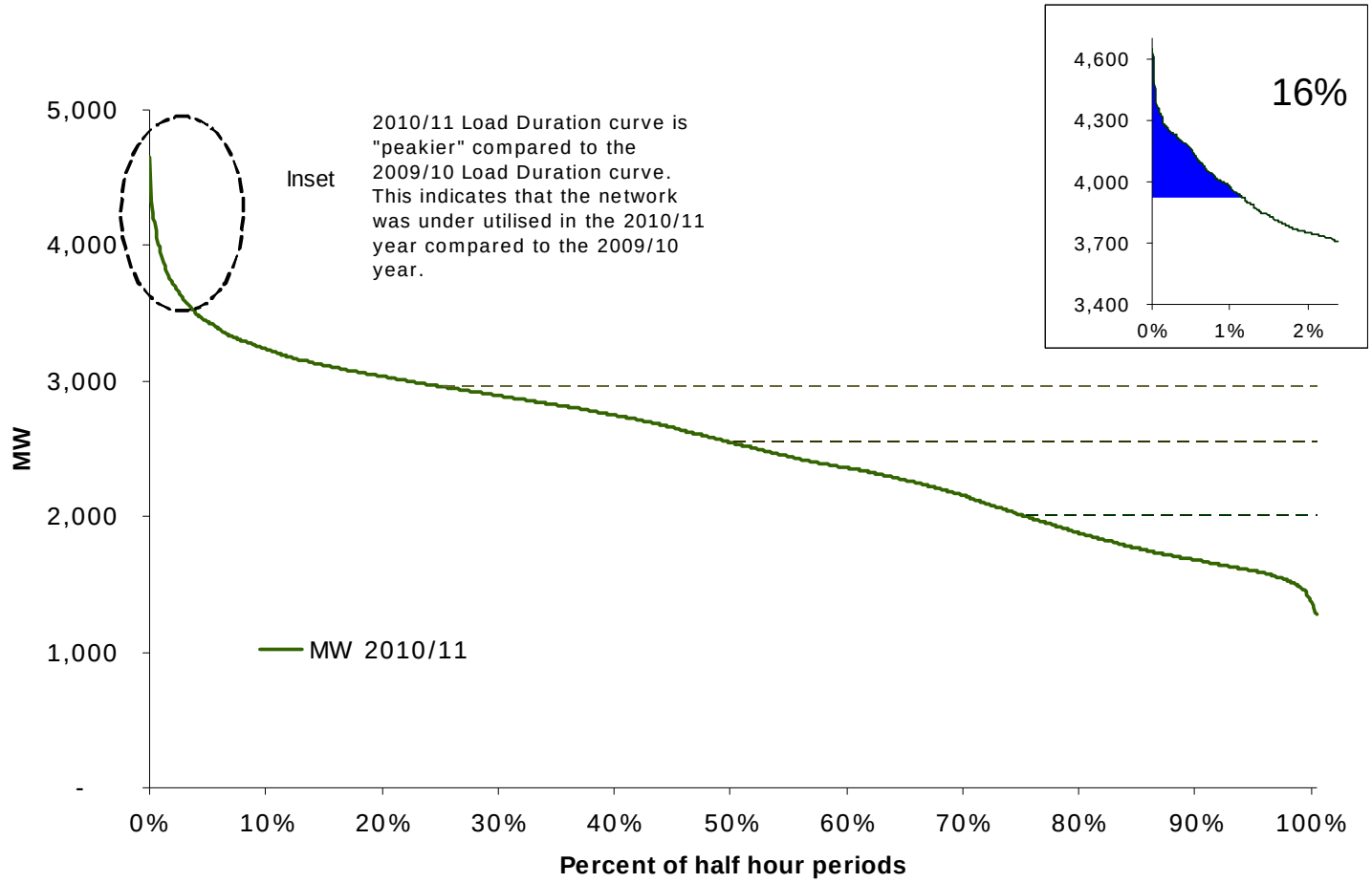
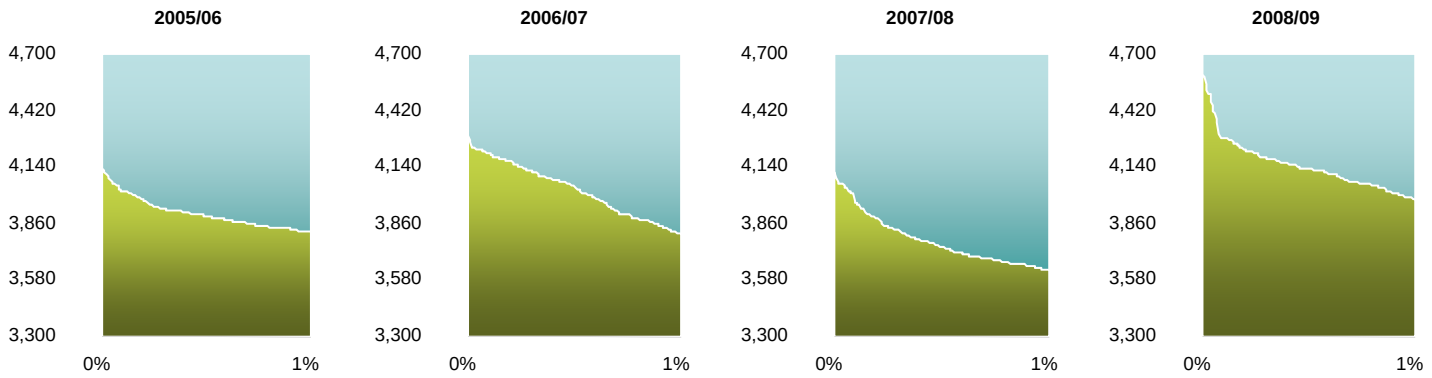
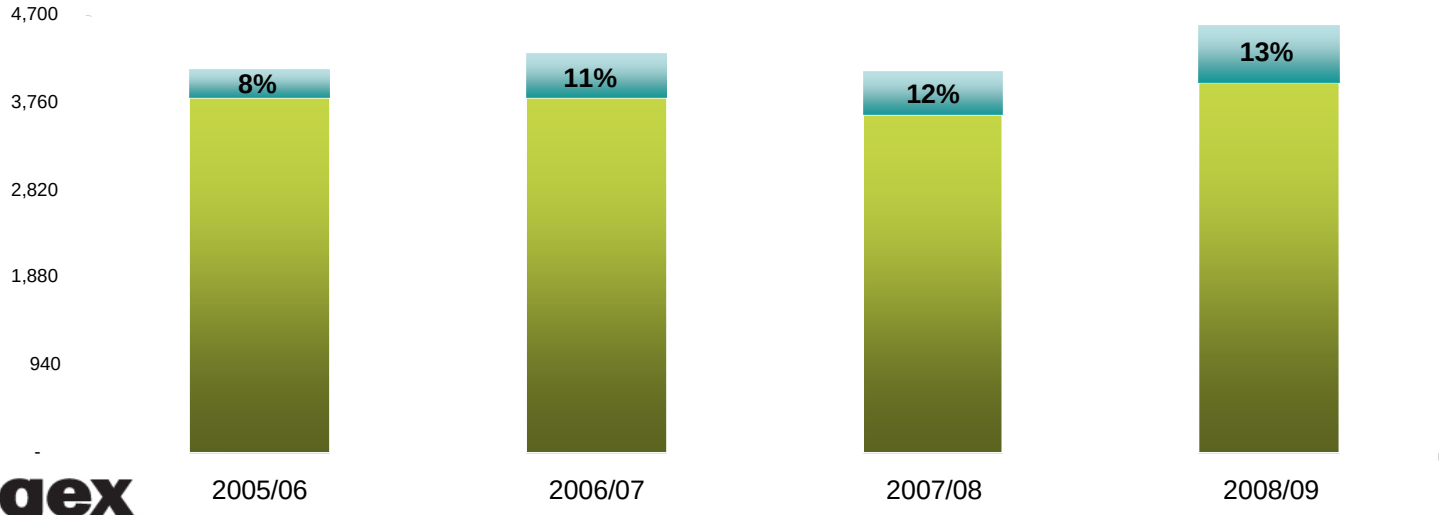
Load Duration Curve



The peak is getting peakier





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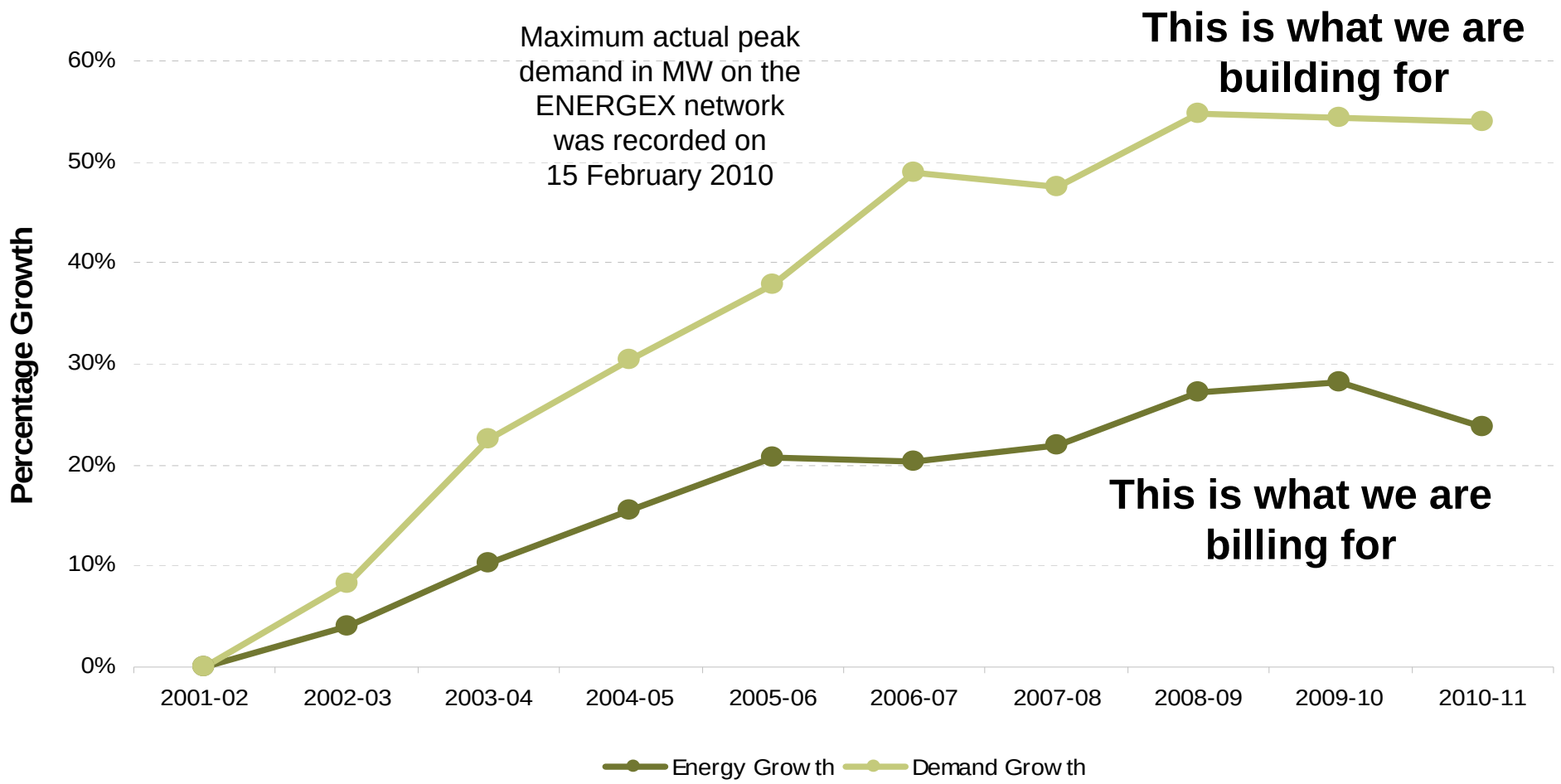
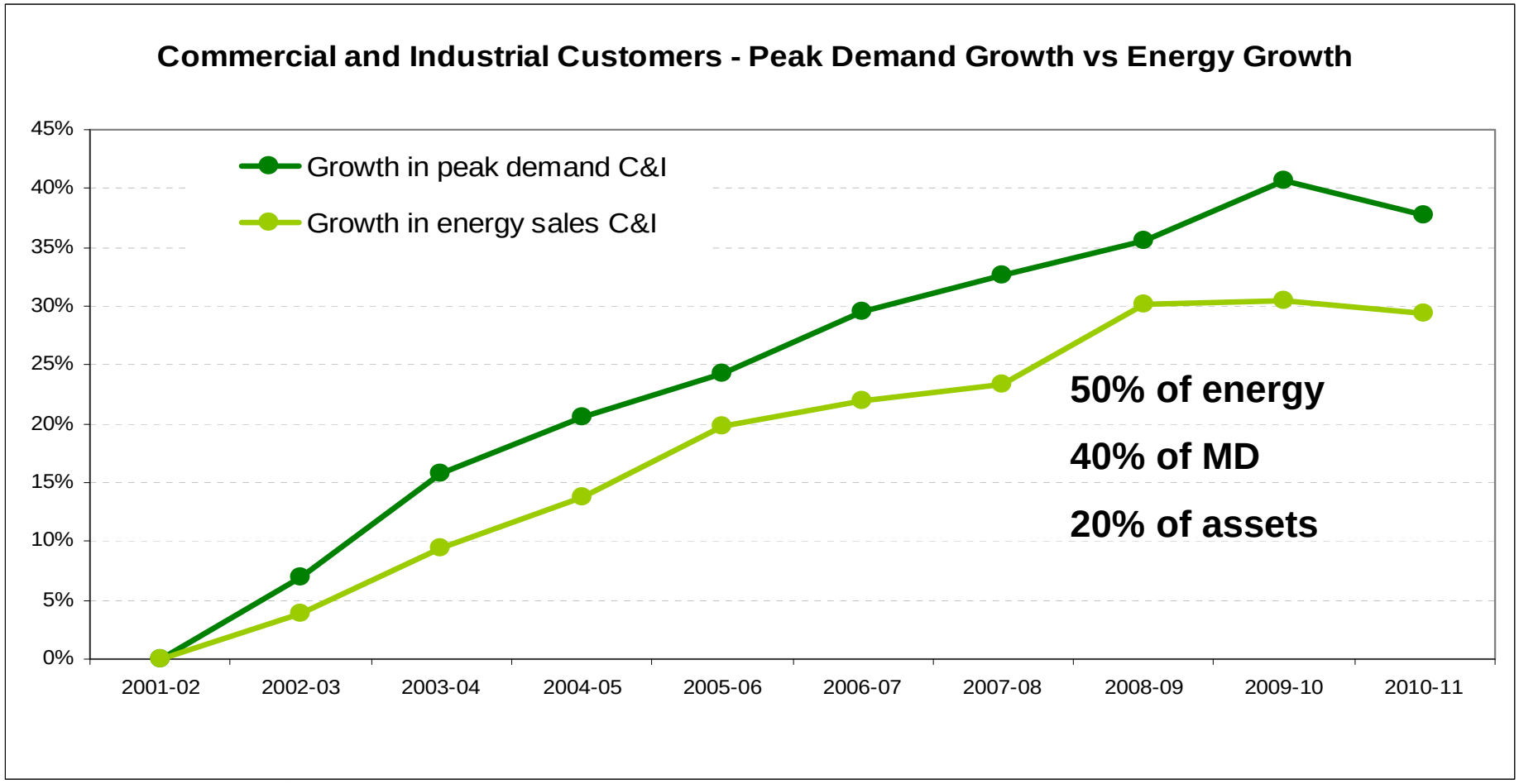
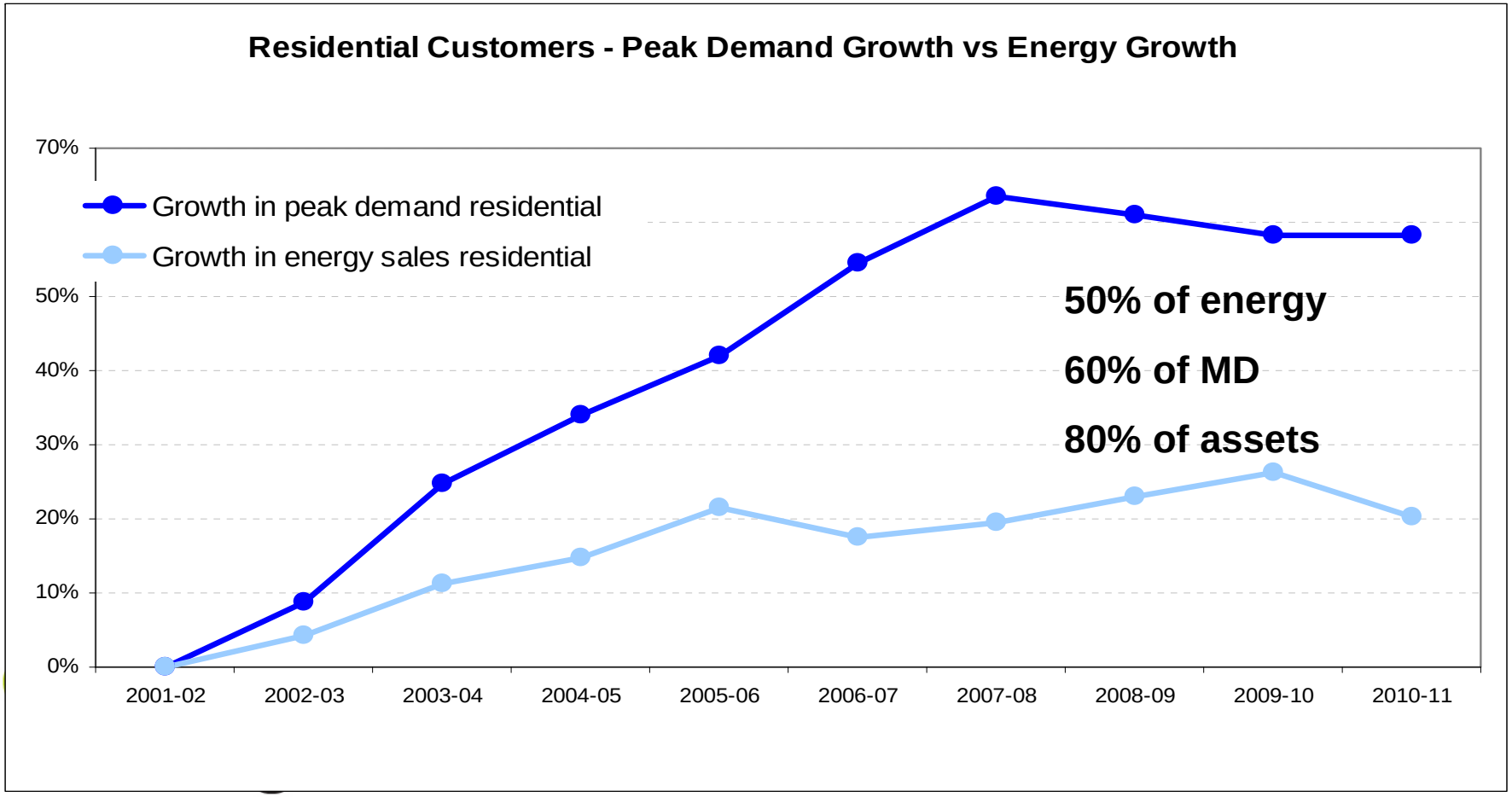
Overall peak demand is growing in SEQ



C&I peak demand and energy consumption are tracking consistently and the load factor is stable



Residential energy consumption has declined while peak demand has increased resulting in a worsening load factor



Current Residential Price Signals

- Economy T33 and Super Economy
  - T31 60% reduction, 8 hours per day - $5.54 month
  - T33 40% reduction, 18 hours per day - $5.54 month
- Normal - T11 - with a monthly fixed $7.96 month
- Inclining Block Tariff T11- 1 July 2012
- Voluntary Time of Use Tariff T12 - 1 July 2012

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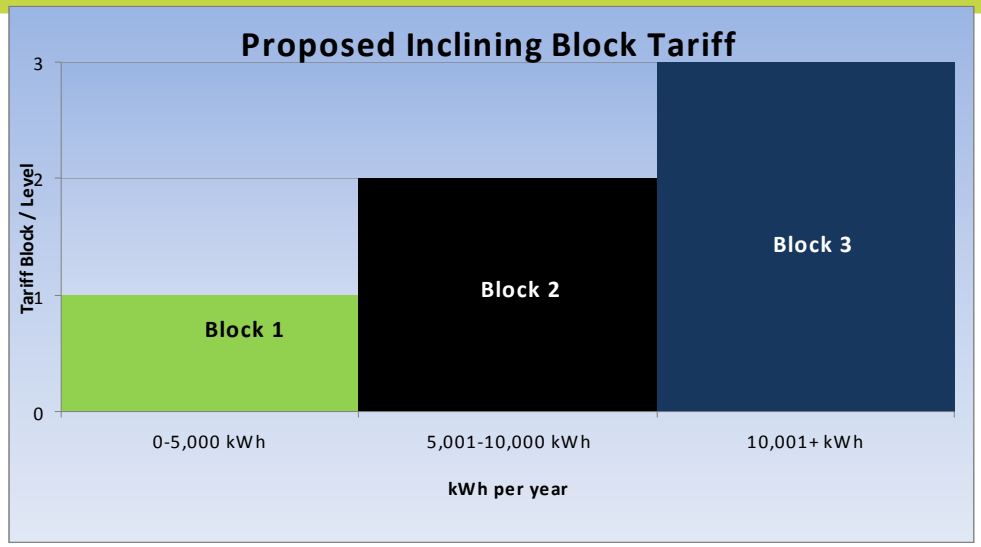
Proposed retail tariffs – IBT, TOU, Fixed Charge

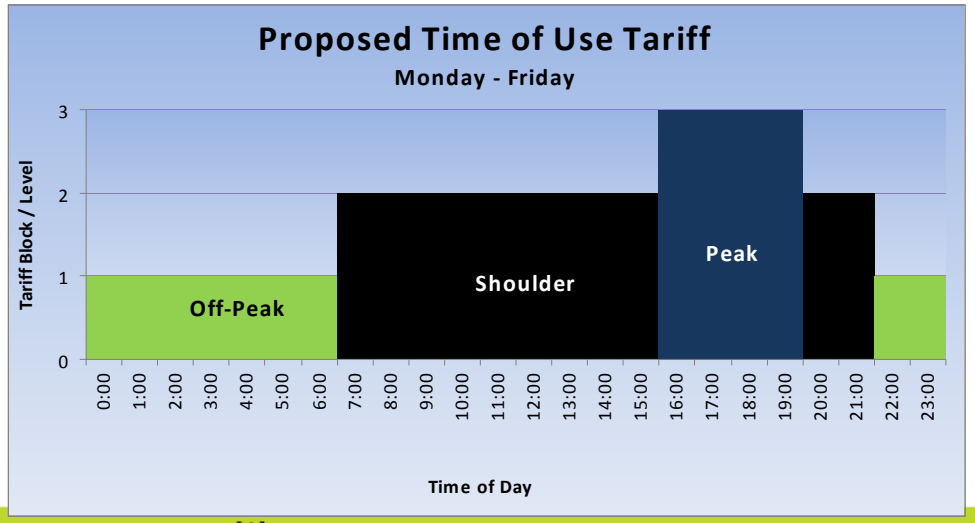
Source: QCA Draft Determination Regulated Retail Electricity Prices 2012-13

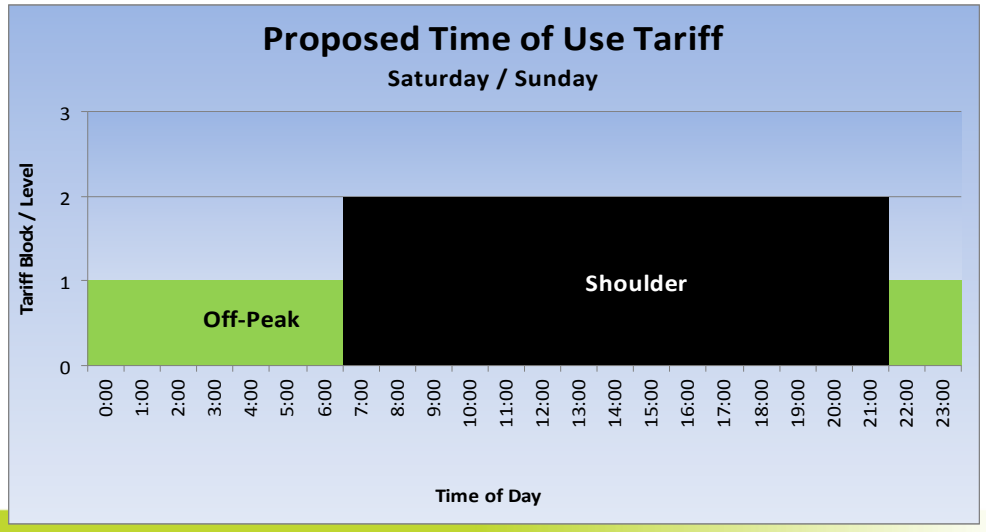


Proposed Fixed Charge

This is a charge that, in application, is charged at a rate of 78.674 cents per day (ex GST) for all customers on T11 (IBT) and T12 (ToU)

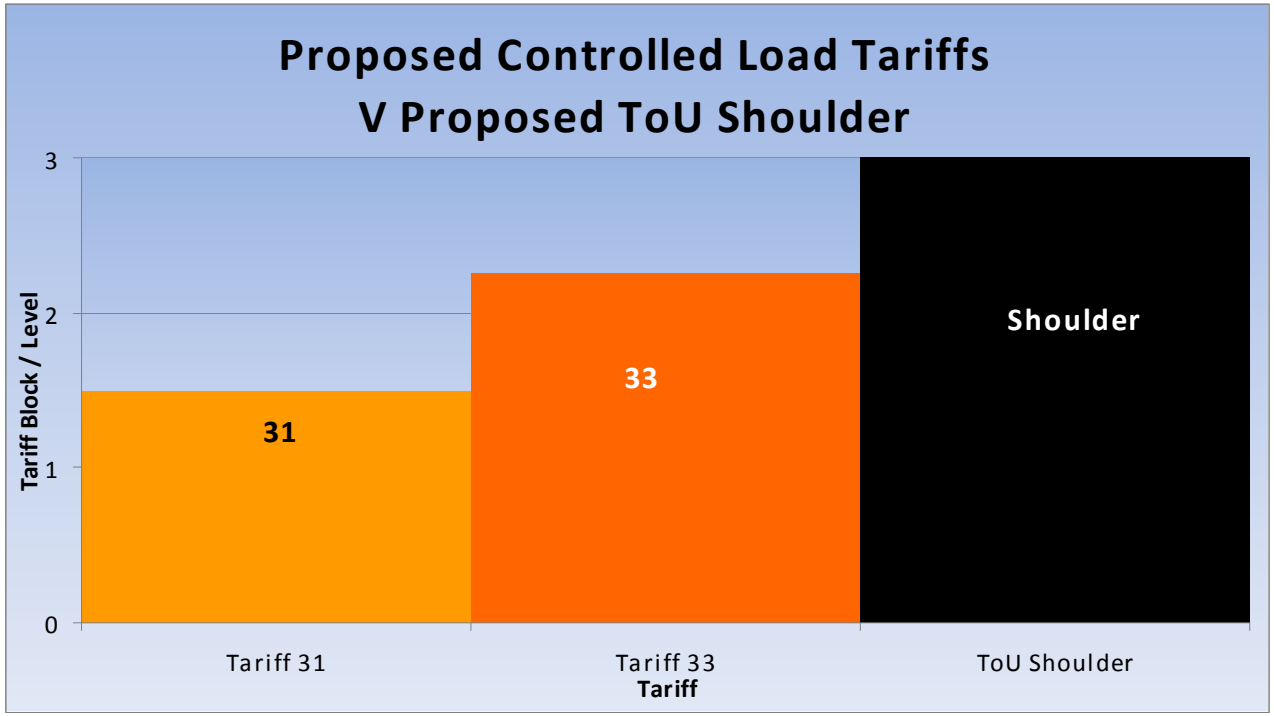
Monthly charge equates to approx $23.94 per month (ex GST).





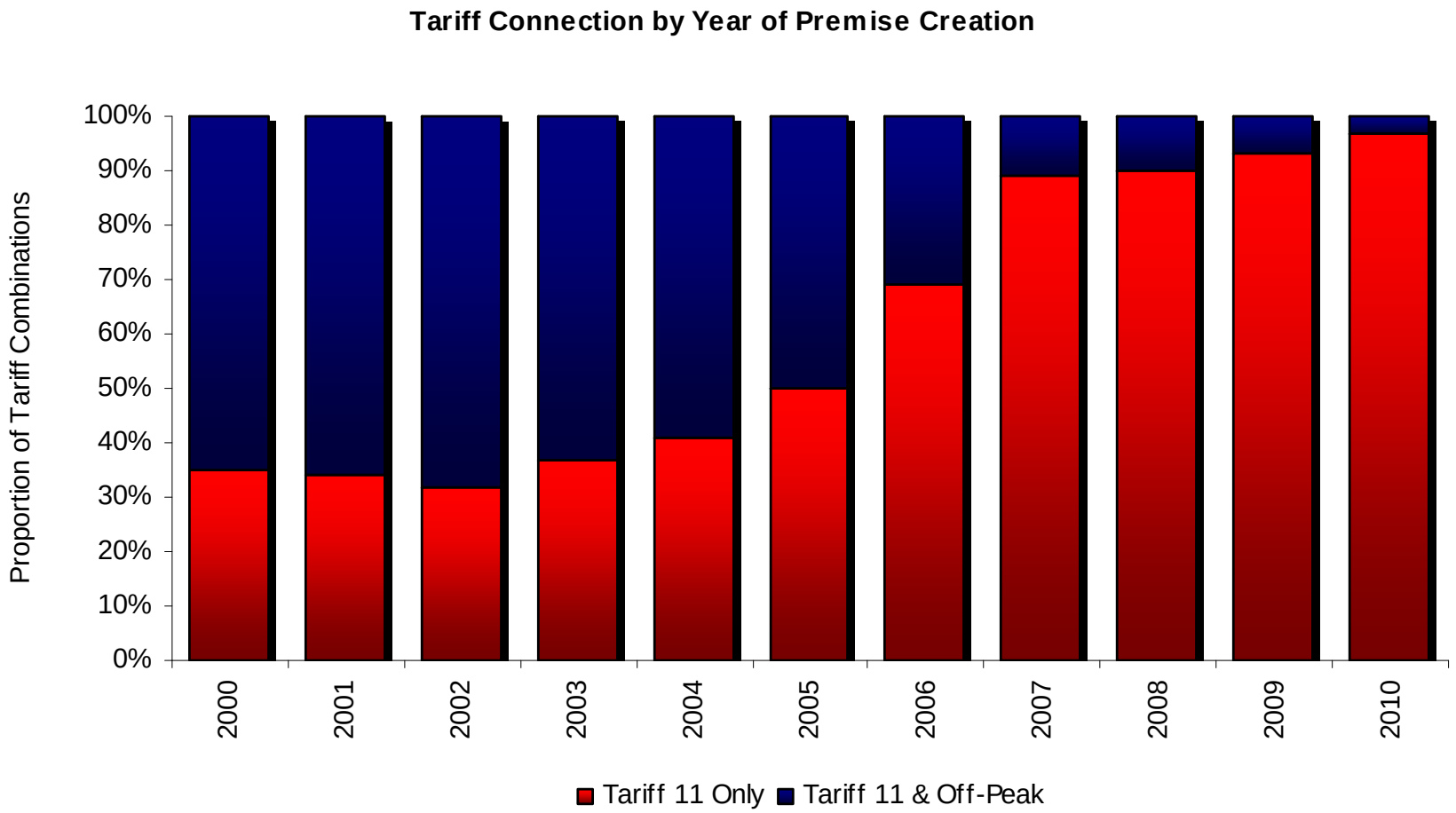
Proposed Controlled Load – Economy, Super Economy

Source: QCA Draft Determination Regulated Retail Electricity Prices 2012-13

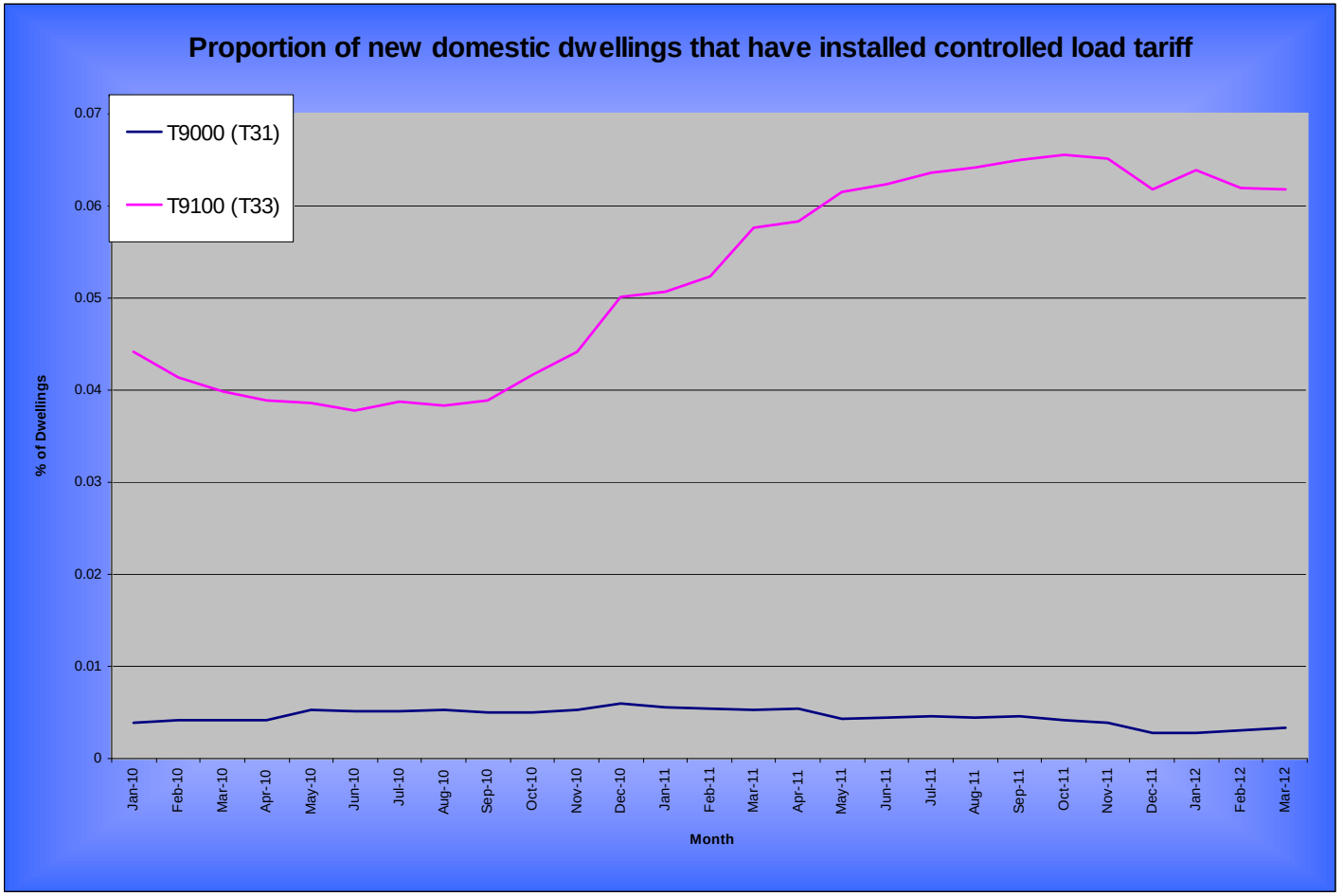


The gazetted minimum payment of $5.54 per month ex GST for Tariff 31 and Tariff 33 have been removed with no minimum charge applying in the 2012-13 gazette

Controlled load tariffs were effective –
Hot Water - Behaviours are changing



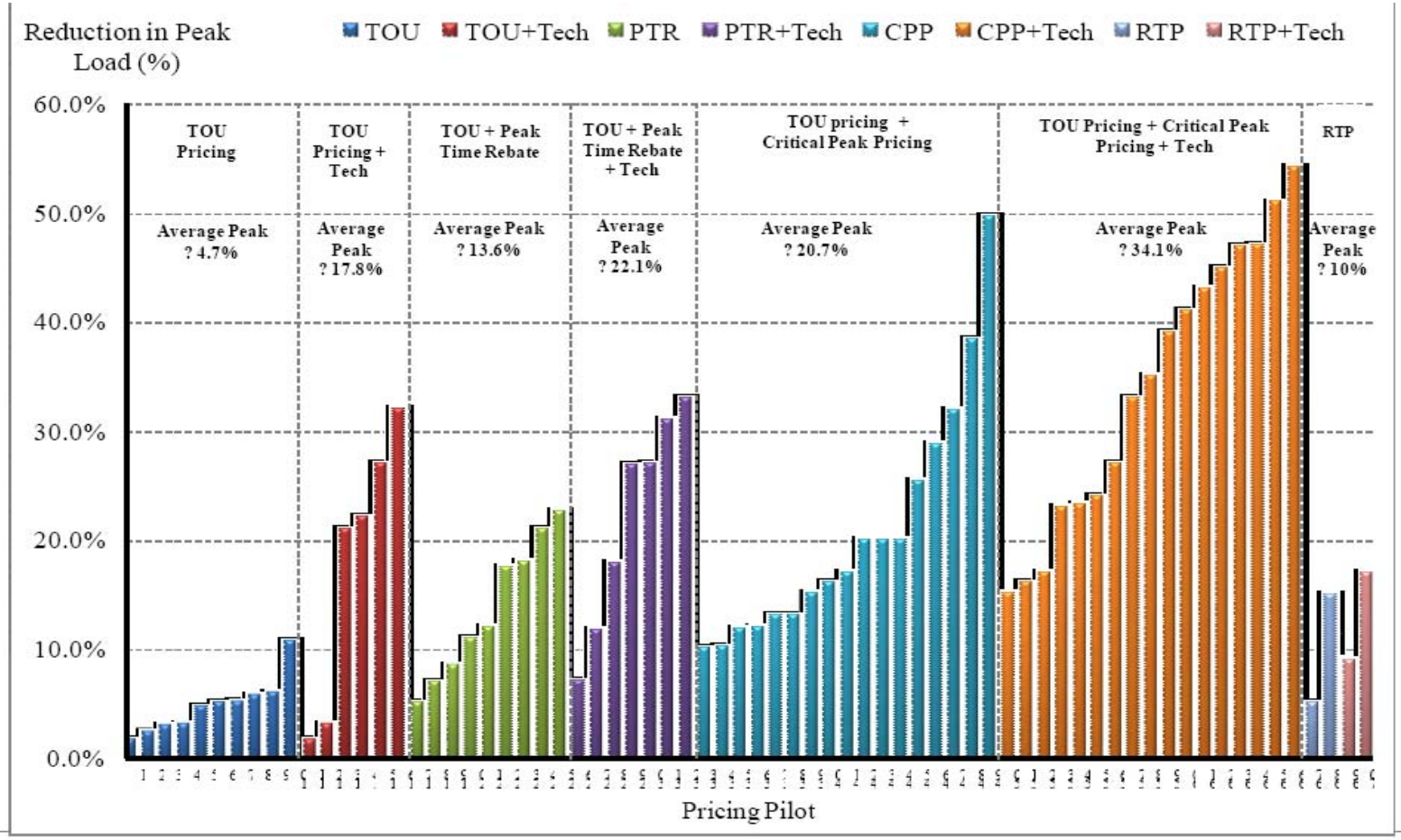
Controlled load tariffs now –
Regaining lost ground with focus on GHE hot water



Prices signals

- The proposed ToU and IBT are steps on a journey towards more cost reflective price signals
- Features that need to be signalled to customers
  - Capacity - pay for the demand you choose
  - Peak Events - take a reward if choose to respond

And customers will respond to signals …



Extract from Paul Simshauser Presentation at AEMC Forum 1 April 2011

Technology

- Old Demand Management Technology
    - Electric Storage Hot water, some Pools pumps
    - Limited visibility – and care factor
- Now AS4755 Air Conditioners are for sale this year
    - High care factor
    - many appliances could be managed if the incentive and convenience are present

Greenhouse Efficient Hot Water Systems

Old system generally on controlled load

- 2-2.5 hrs per day, 3.6 kW element
- 3000 – 3300 kWh per year - cost $305
- Contribution to network - $150
- impact on Peak , nil

New electric boost solar, usually T11

- 2 hrs per day 15 days per year 3.6 kW element
- 108 kWh per year cost $24
- Contribution to network $12
- impact on peak, up to $7,500 before diversity, **nil if connected to controlled load circuit**

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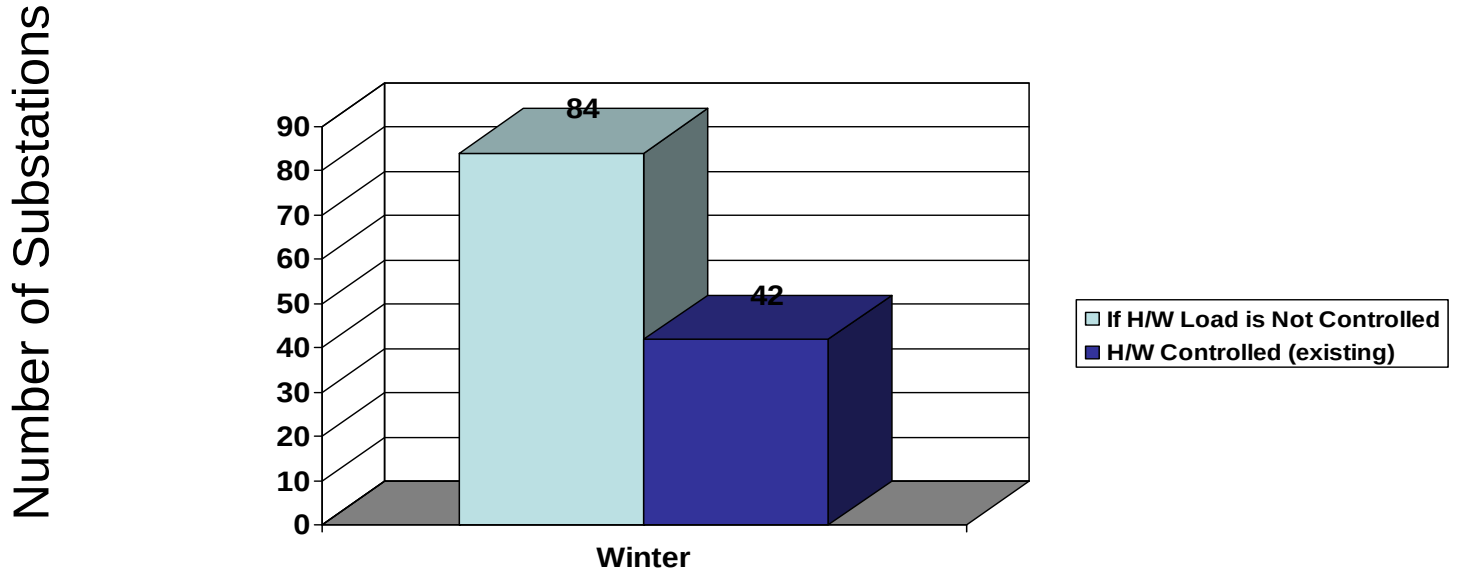
Load Management – Hot Water Load Forecast

Number of Substations Peaking in Winter

With / Without Existing Hot Water Load Control



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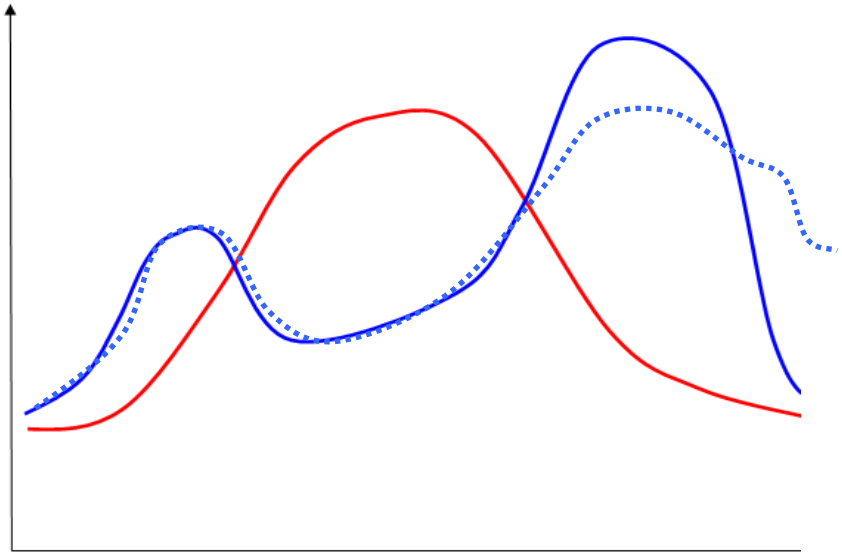
Load Management – Hot Water Load Forecast

With Switching Program

- Reduce the number of Winter peaking subs by 42
- System and Individual peaks are reduced on average by ~ 7% (some up to 14%)
- Provides 95 substations with reduction of > 3% (predominately Winter, but some Summer)



Load Control drops the winter peak

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Pools

- Two offers in the market
- Connection to controlled load T33
    - Direct circuit from the switchboard to the pump socket outlet
- High efficiency pump with variable speed drive
- And you can do both
- Strong industry support, great value for consumers

Building on the foundation:
PeakSmart Air-Conditioning

This is NOT about turning off air conditioners!

Comfort is King

Sophisticated Demand Management

- A/C demand management is designed to minimise any perceivable change

Standards / Manufacturers - AS4755 New Demand Reduction AC Technology

- **Input energy capping NOT Compressor cycling** (ECC & Cool change)

Industry led model: Work with AC manufacturers, sales & installation channels to target new AC units from 2012

Target >66,000 units in SE Qld by 2015 (30MW peak load reduction)

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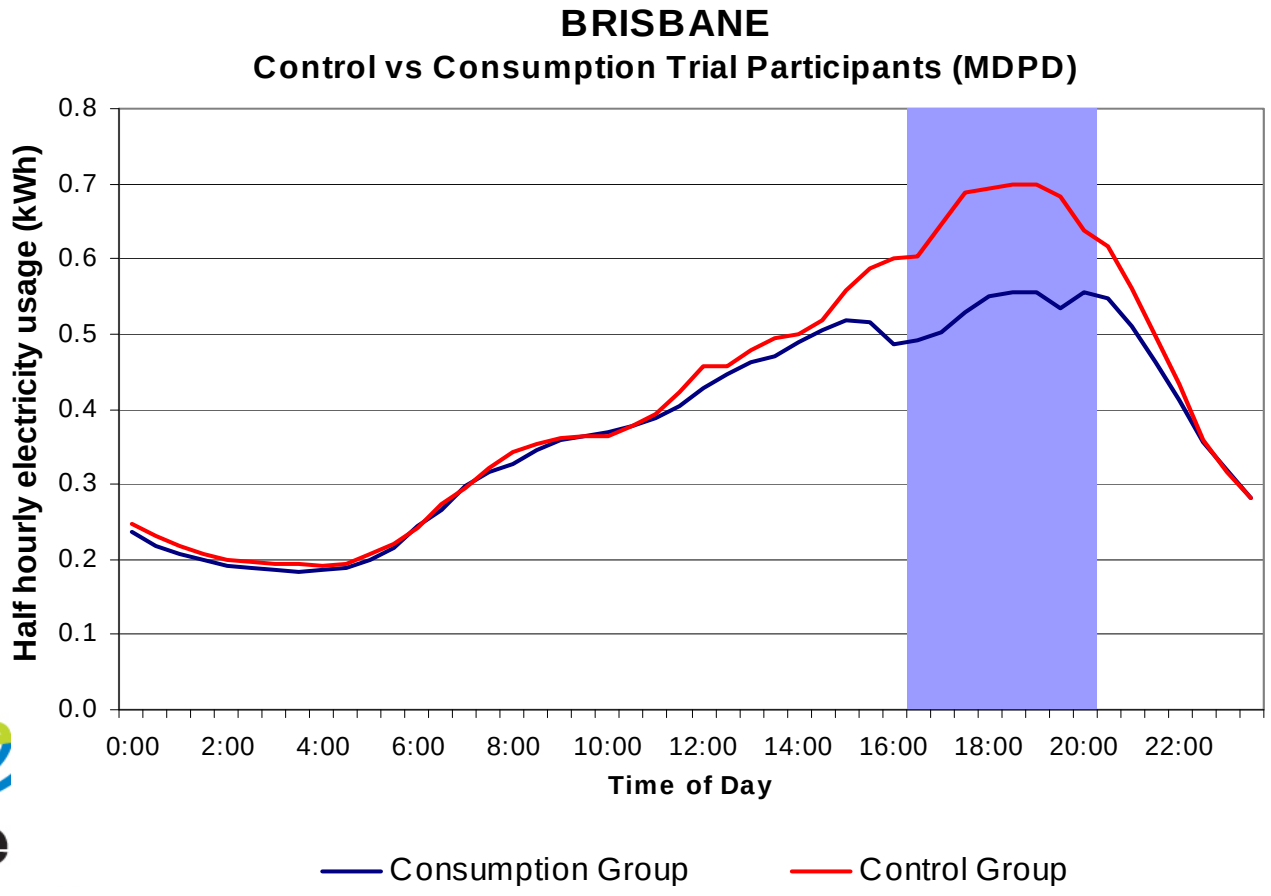
Consumption based tariff trial
- Average Brisbane results

5 summer events throughout 2011. All days greater than 30°

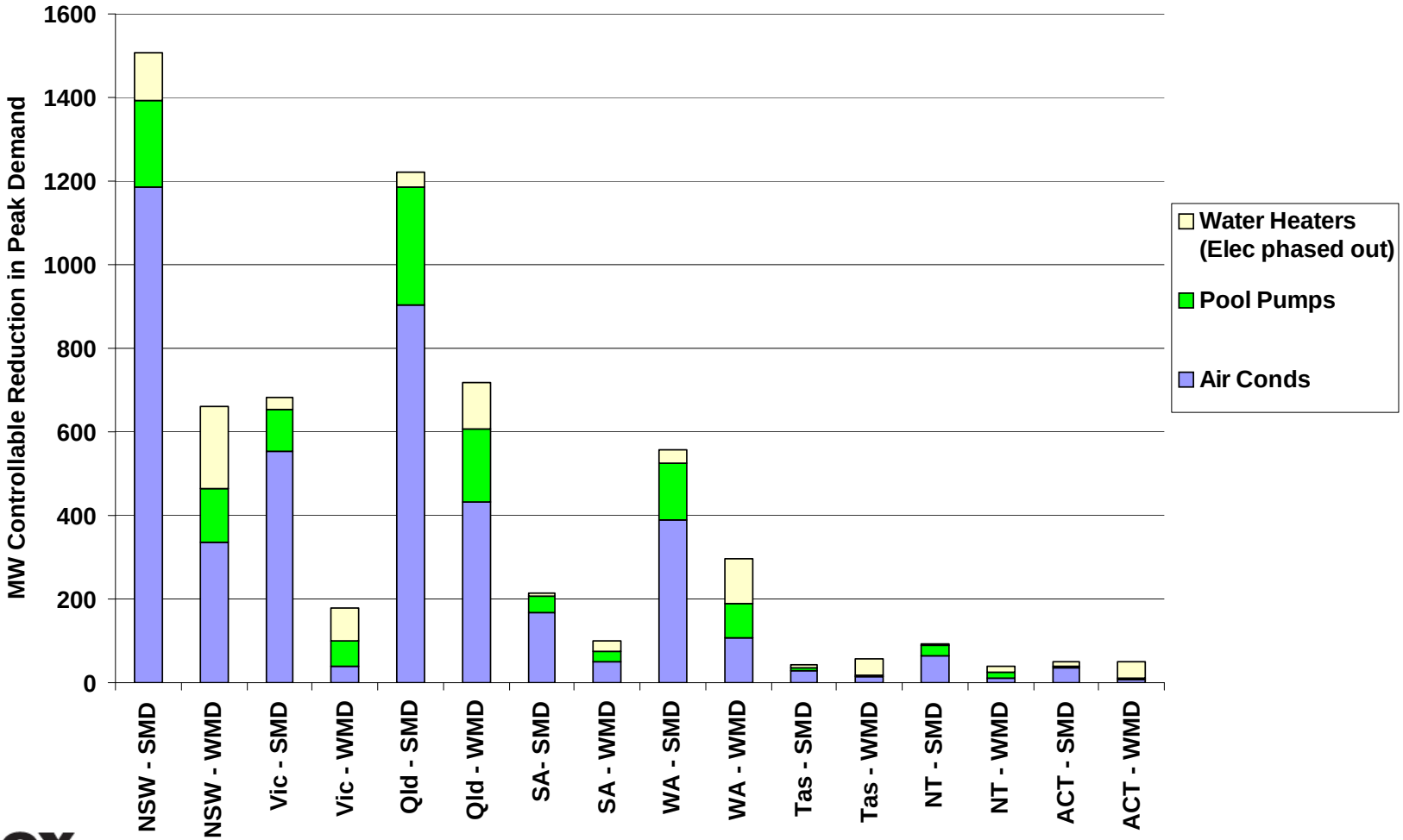


To achieve peak demand reductions

- Communications
  - SMS or phone call
  - Day before notice
- Response
  - Voluntary
  - Varied, not usually air conditioning
  - People found capacity when given the opportunity and incentive
- Meter comms only used for data collection, process could be run on standard interval meters
- With Home automation could be seamless and convenient
  - Appliances with capability
  - Incentives to reward

Peak demand reductions in 2025
(Source: DCCEE)

RIS
When it be released?



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Key Messages

- Load duration and load factor need to be improved to achieve lower cost (capital efficiency)
- Simple price signals
  - Capacity, Time of Use
  - Critical peak
- Technology - responding to Peak Demand
  - Incentives and rewards
  - Comfort and convenience
  - Ubiquitous and voluntary

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