# Demand Management and Sustainable Design

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November 2006

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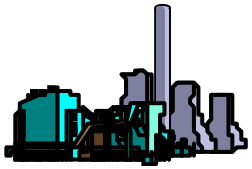
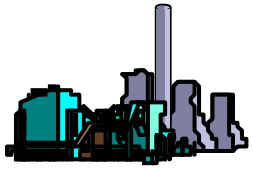
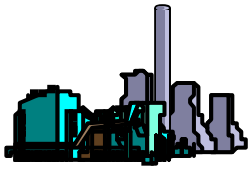
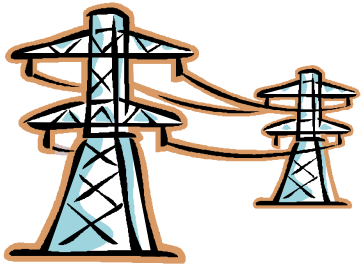
# The Electricity Supply Chain Impact

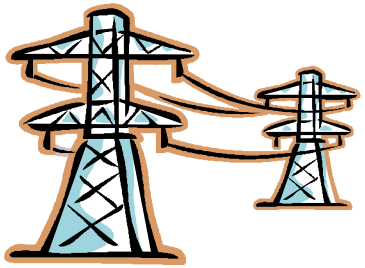


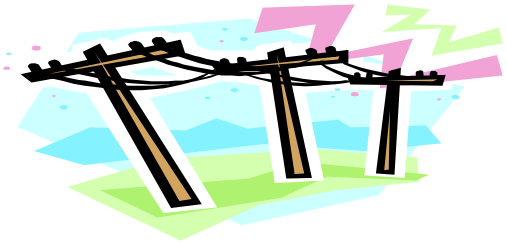


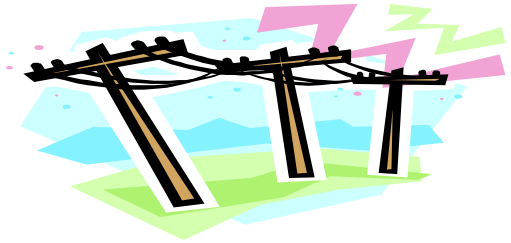


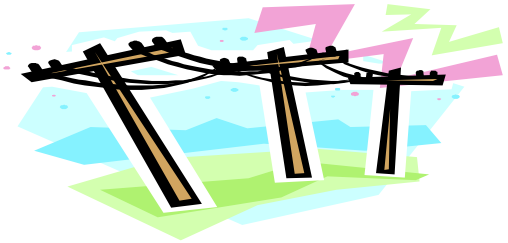
TRANSMISSION





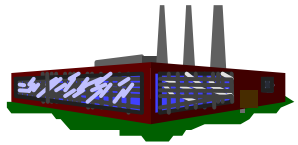






DISTRIBUTION

END USER



GENERATION

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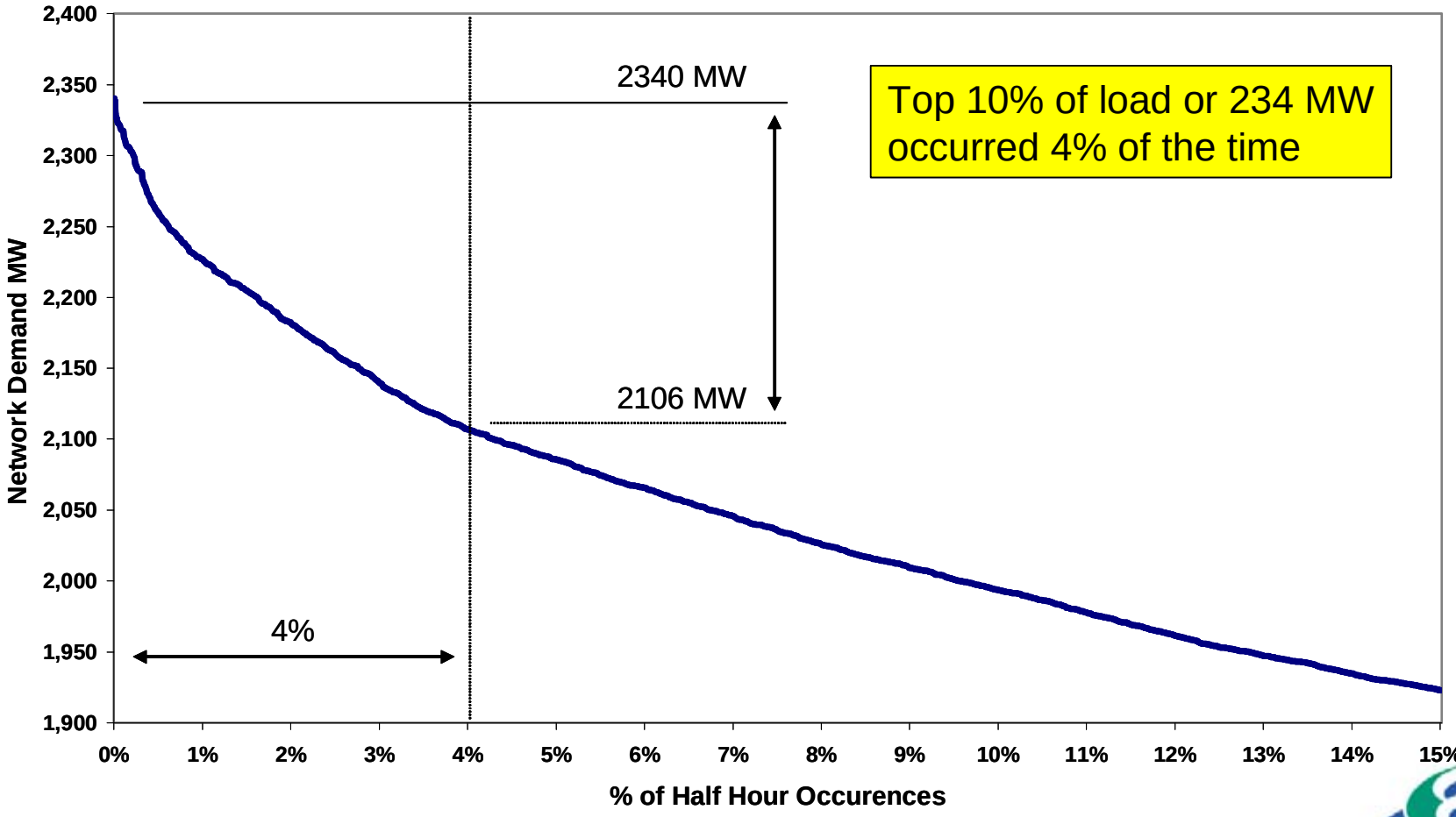
# Electricity Demand

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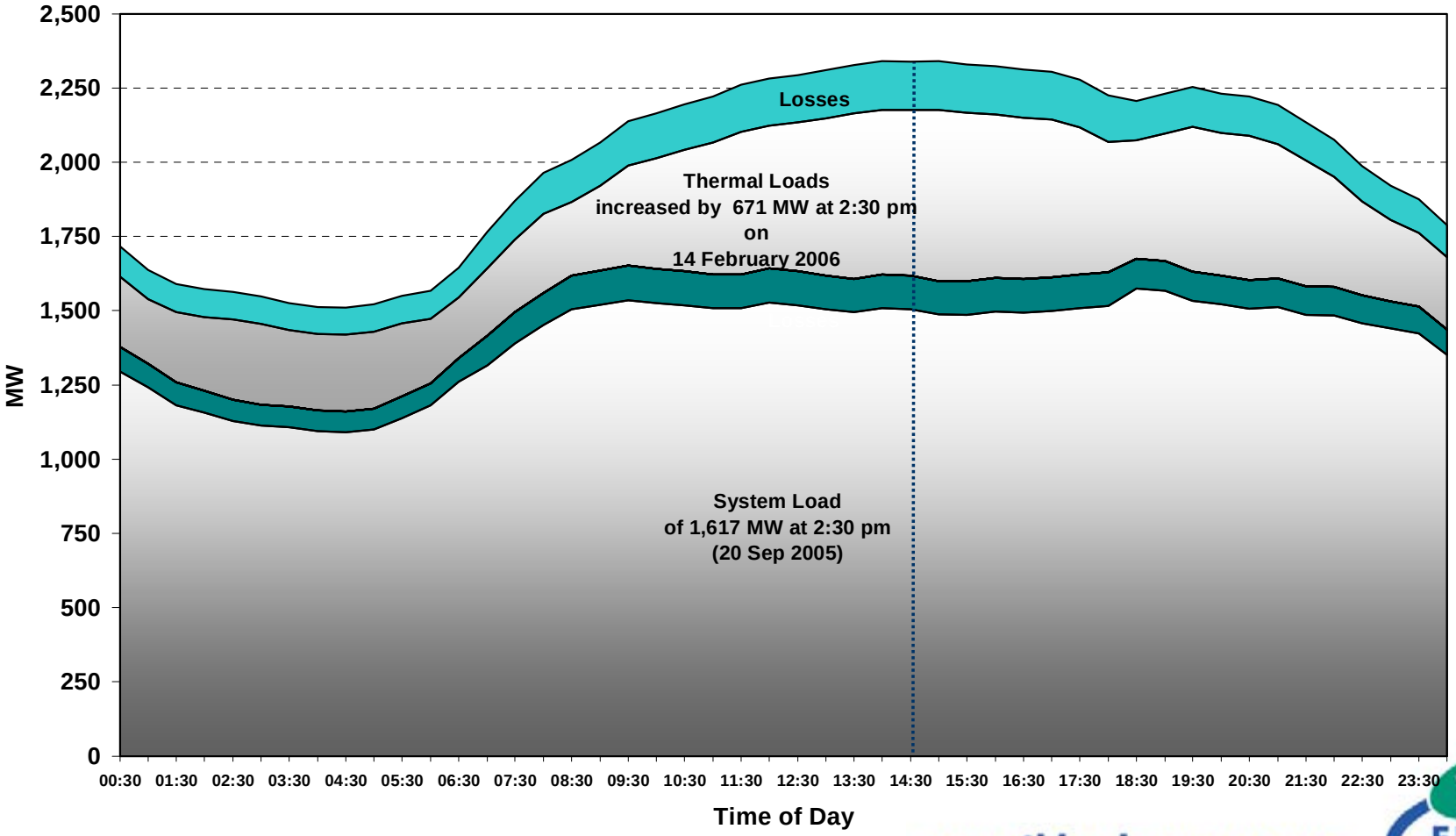
# Impact of Hot Weather

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# What is Ergon Energy Doing?

- Solar Cities
  - Solar Suburb Magnetic Island
    - Solar PV
    - Smart Meters
    - Trials of demand management initiatives
- Green-T Building (Townsville CBD)
- Other demand management initiatives
- Key focus is:
  - Technology must be here & now (not R&D exercise)
  - Business models must work

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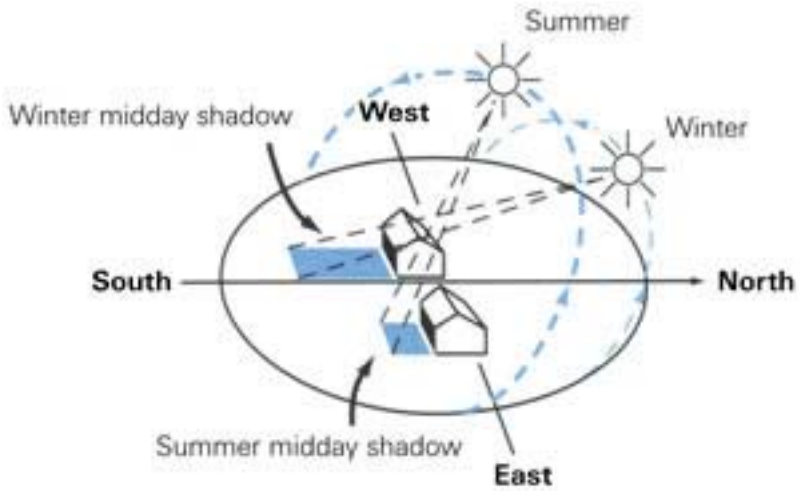
# Design Considerations

- Architectural Considerations Lower Building Energy Needs
  - Building aspect and solar loading
  - Maximising use of natural light
  - Use of natural breezes and shade areas
- Desiccant Dehumidification of Ventilation Air
  - Removes moisture from the ventilation air which reduces cooling load
  - Reduces the size of chillers and cooling tower
  - Need smaller number of larger fresh air inlets

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# Design Considerations

- Chilled Water Storage Air Conditioning System
  - Allows system to run at higher efficiency
  - Chilled water storage shifts demand from peak
  - Potential for heat recovery off chillers
  - Smaller cooling tower required which lowers water consumption
  - Also savings in the air handling system size
  - Translates to smaller ceiling space and smaller plant room space
  - This solution is better suited to new buildings

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# Design Considerations

- Solar Water Heating
  - Competes for rooftop space
  - Hot water can also be used to dry desiccant
  - Solar trough system (shown) provides higher temperature water

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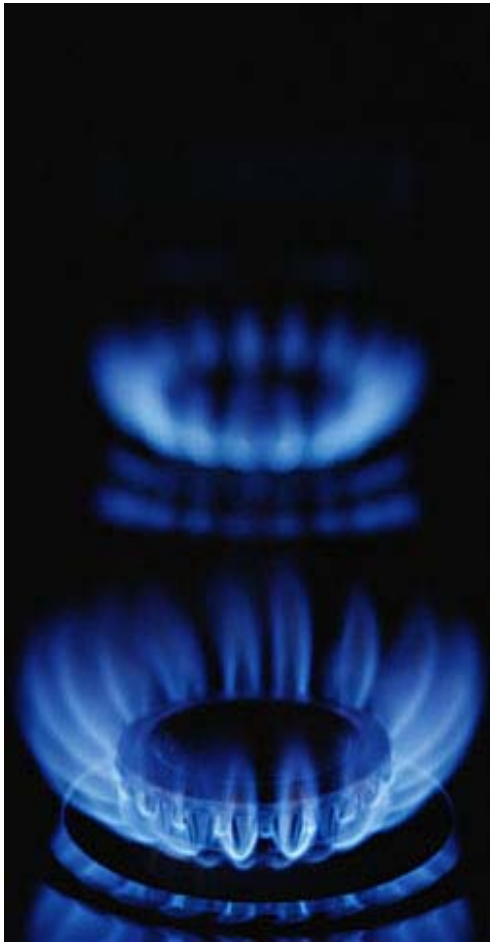
# Design Considerations

- Energy Efficient Lighting
  - Lowers energy consumption
  - Lowers heat load contribution to air conditioning system
- Gas for Cooking and Water Heating
  - No electrical load imposed on network
  - Lower greenhouse gas load



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