

# Electrical Energy Use on Dairy Farms

Dairying for Tomorrow

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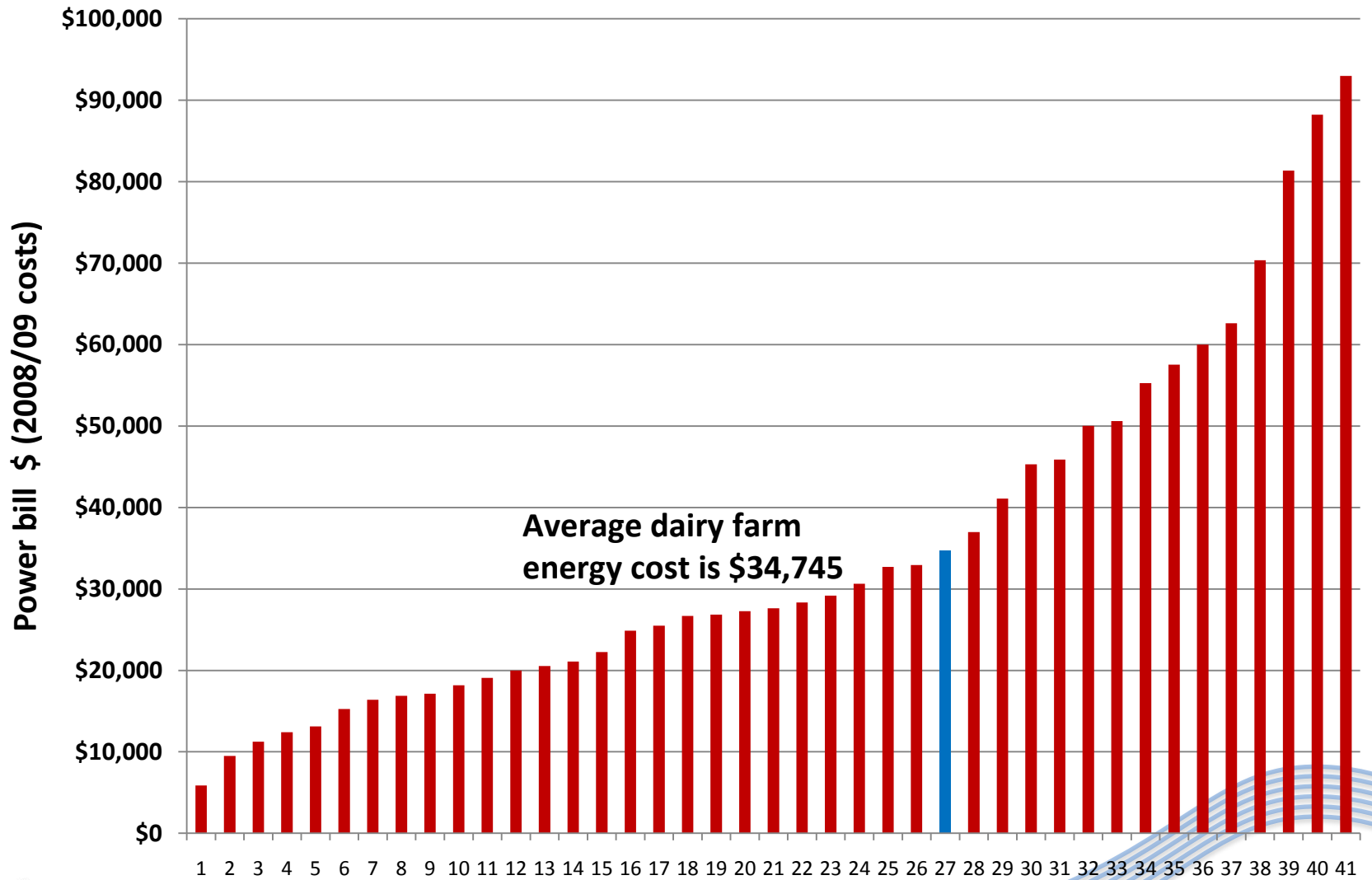


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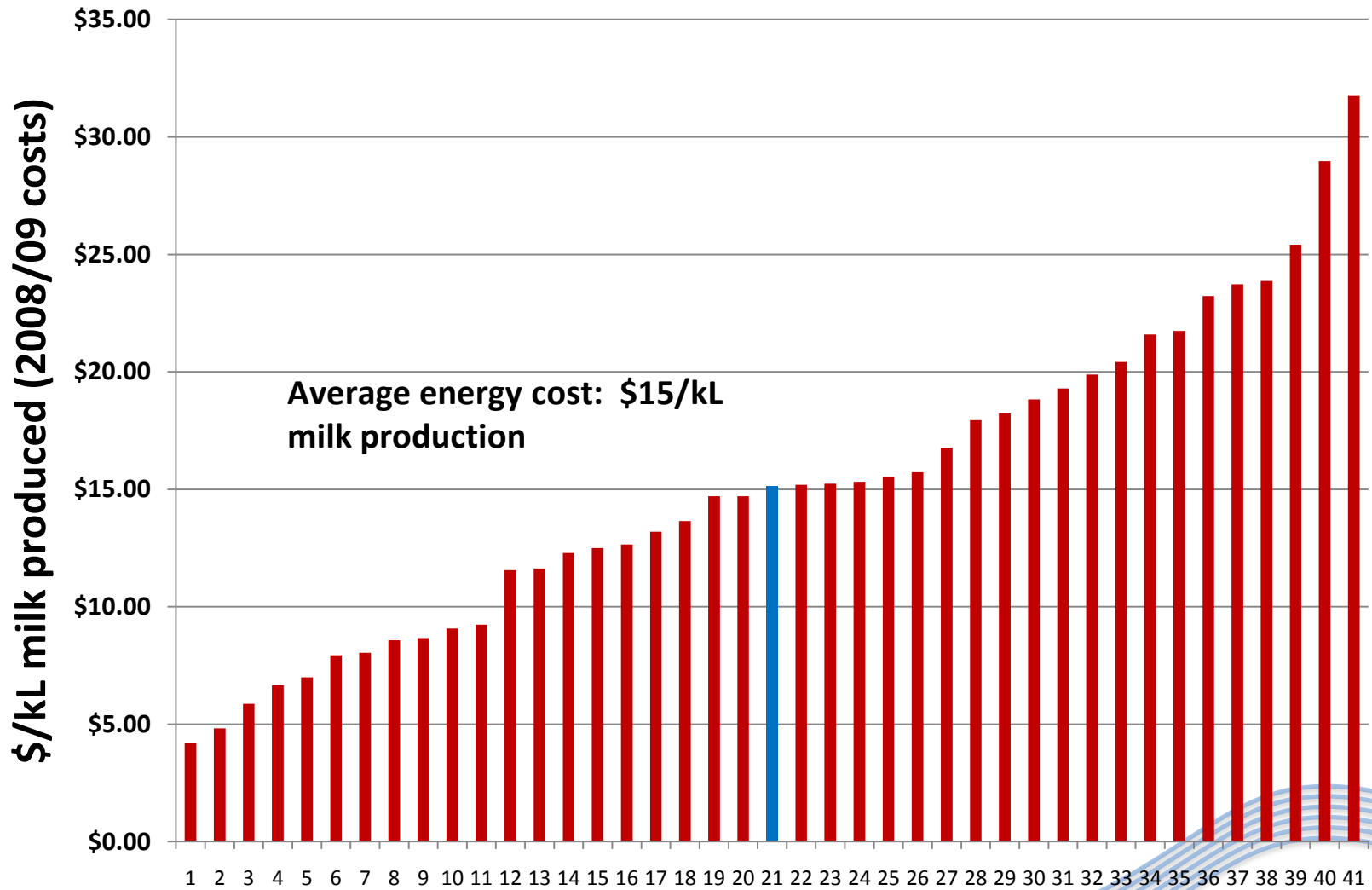
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- Typical electrical energy use on a dairy farm
- Trends in electrical energy costs
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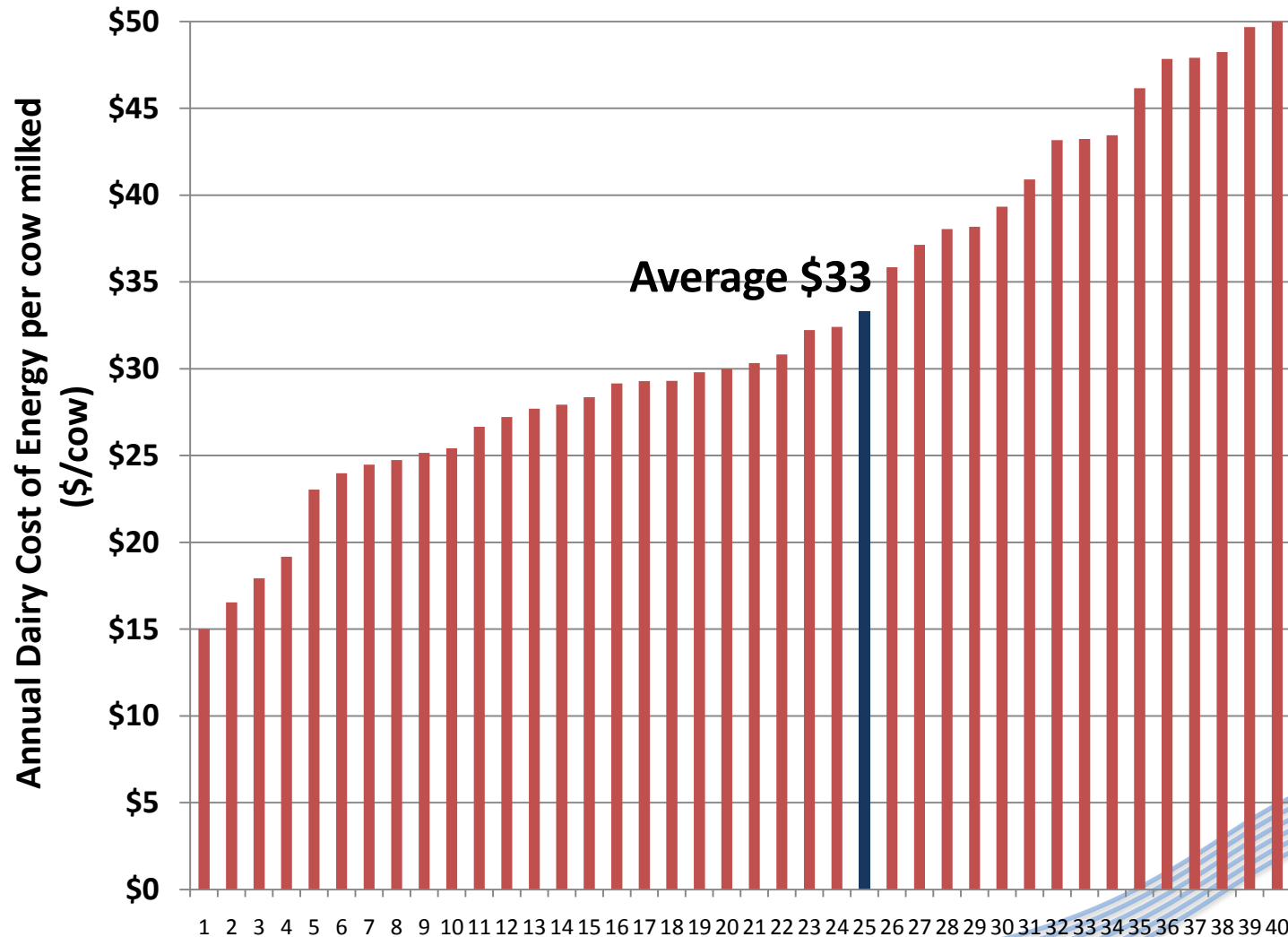
# Dairy farm annual energy cost



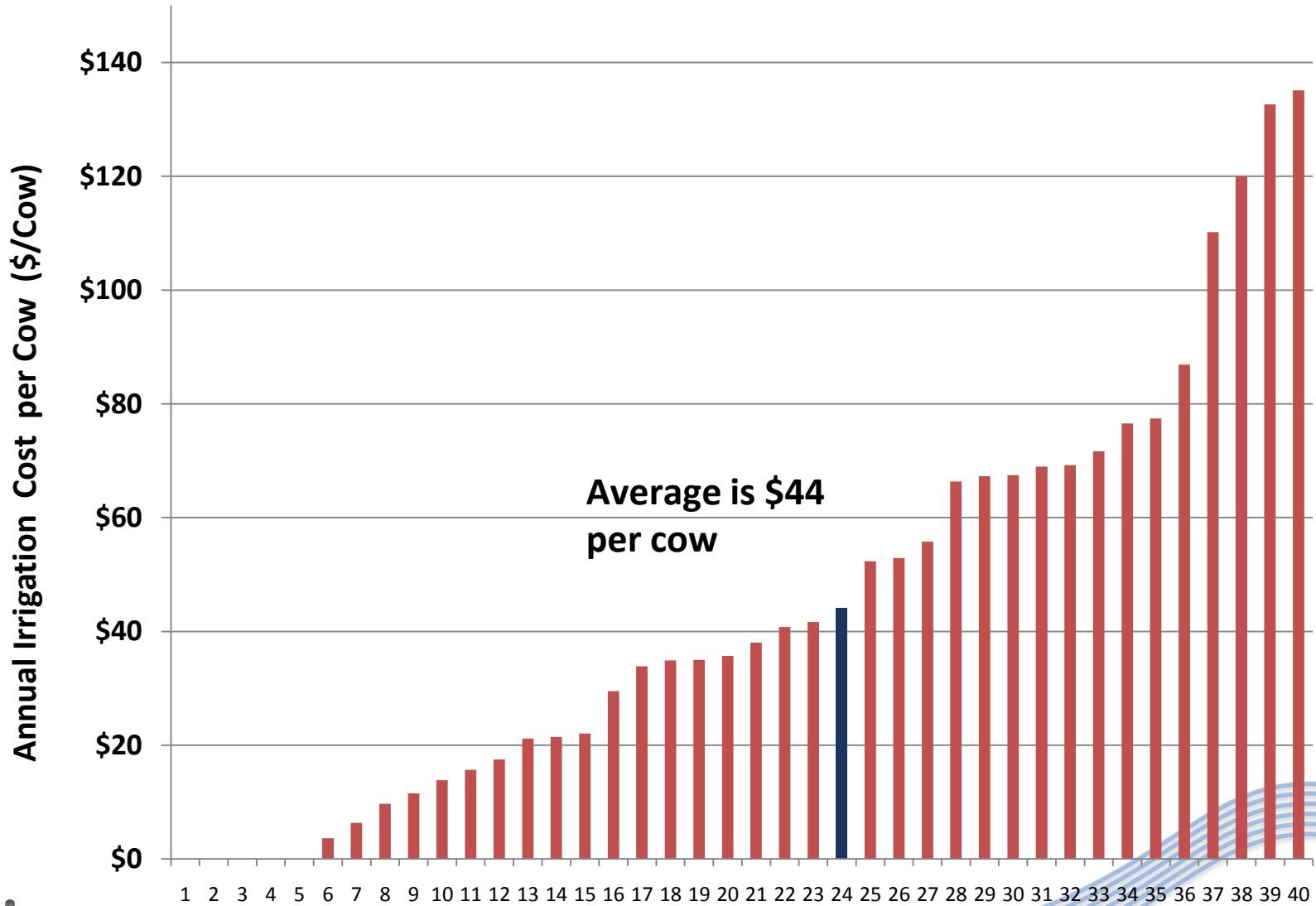
# Dairy farm energy cost per kL of milk produced



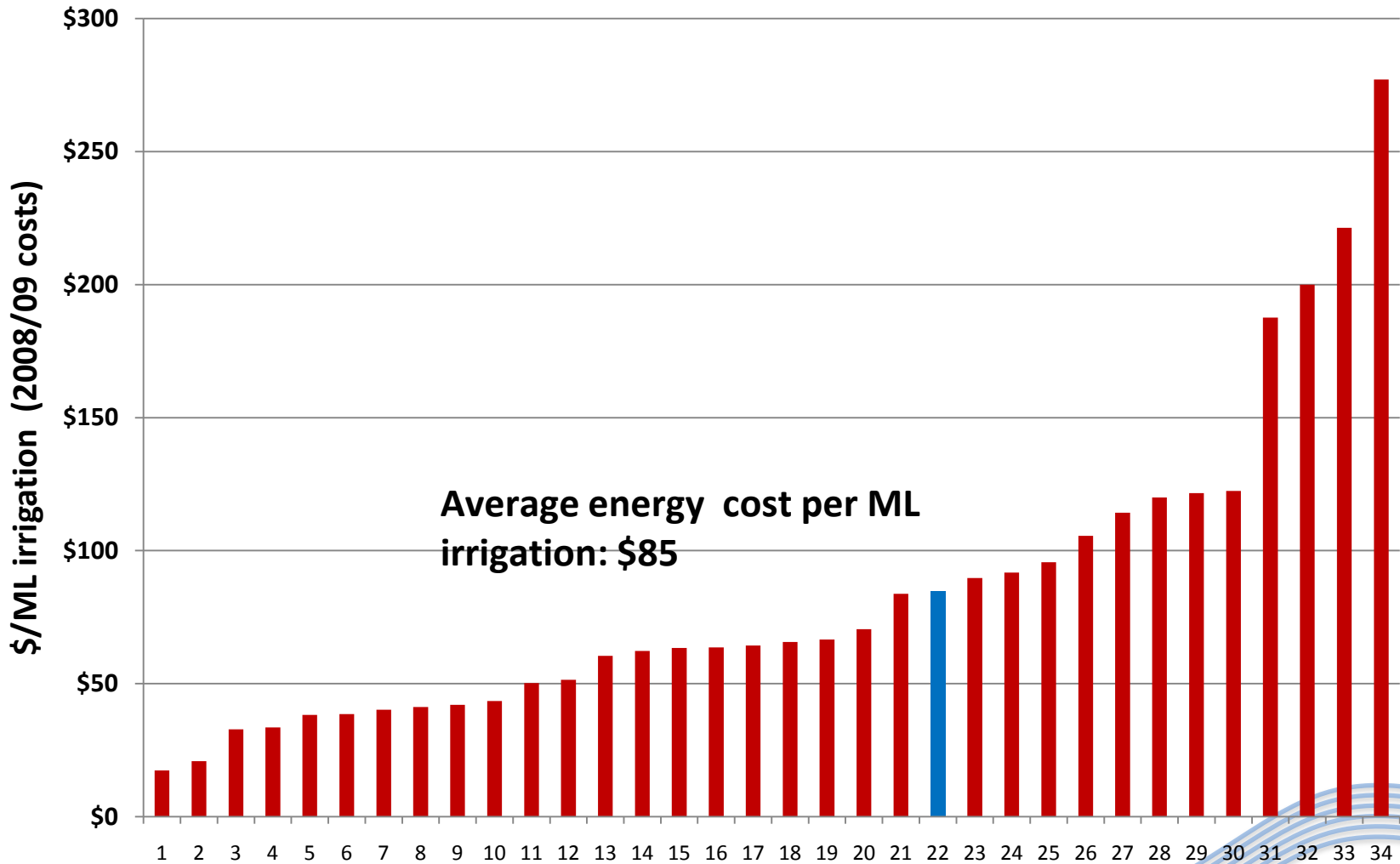
# Dairy shed annual energy cost per Cow



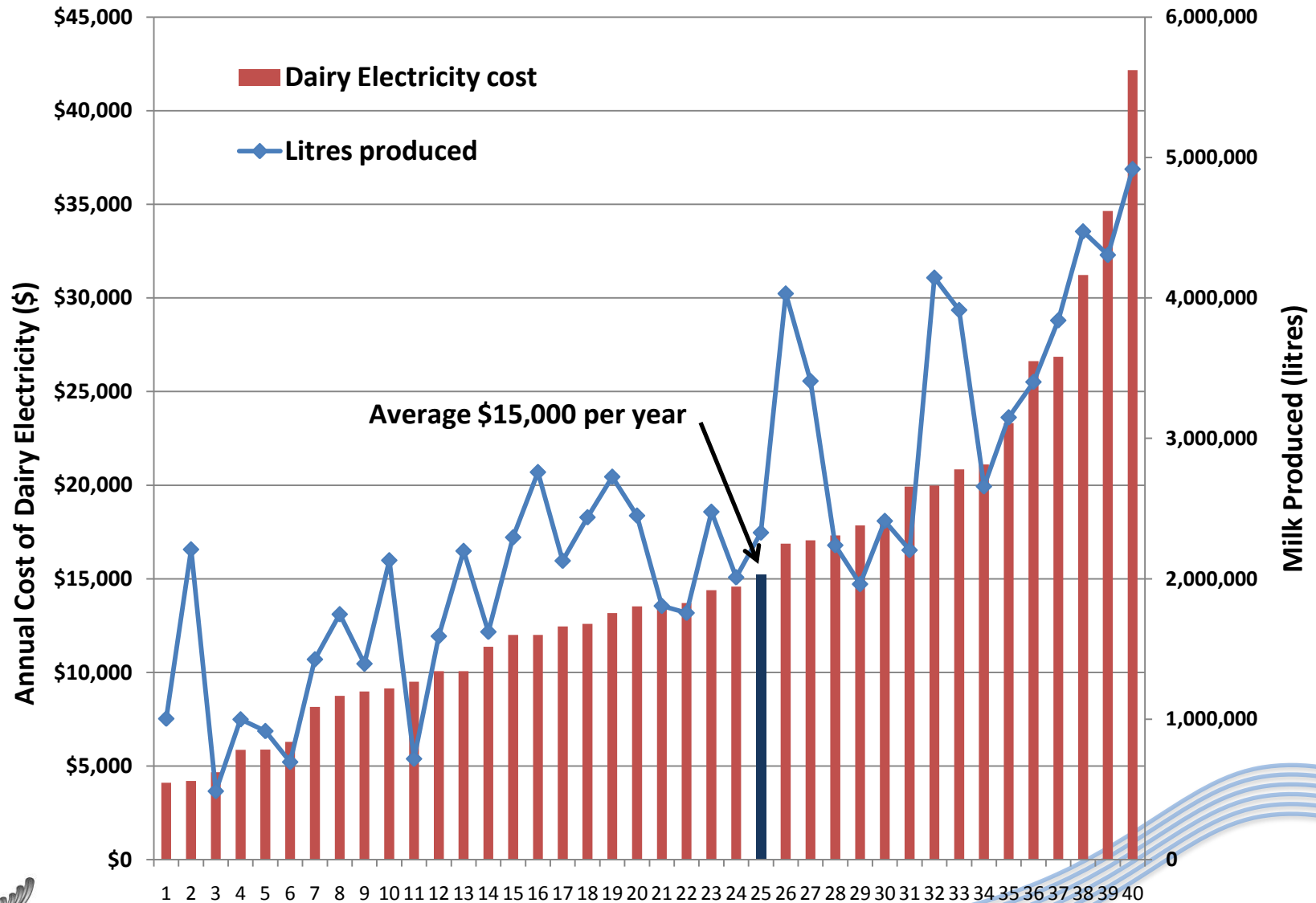
# Irrigation annual energy cost per Cow



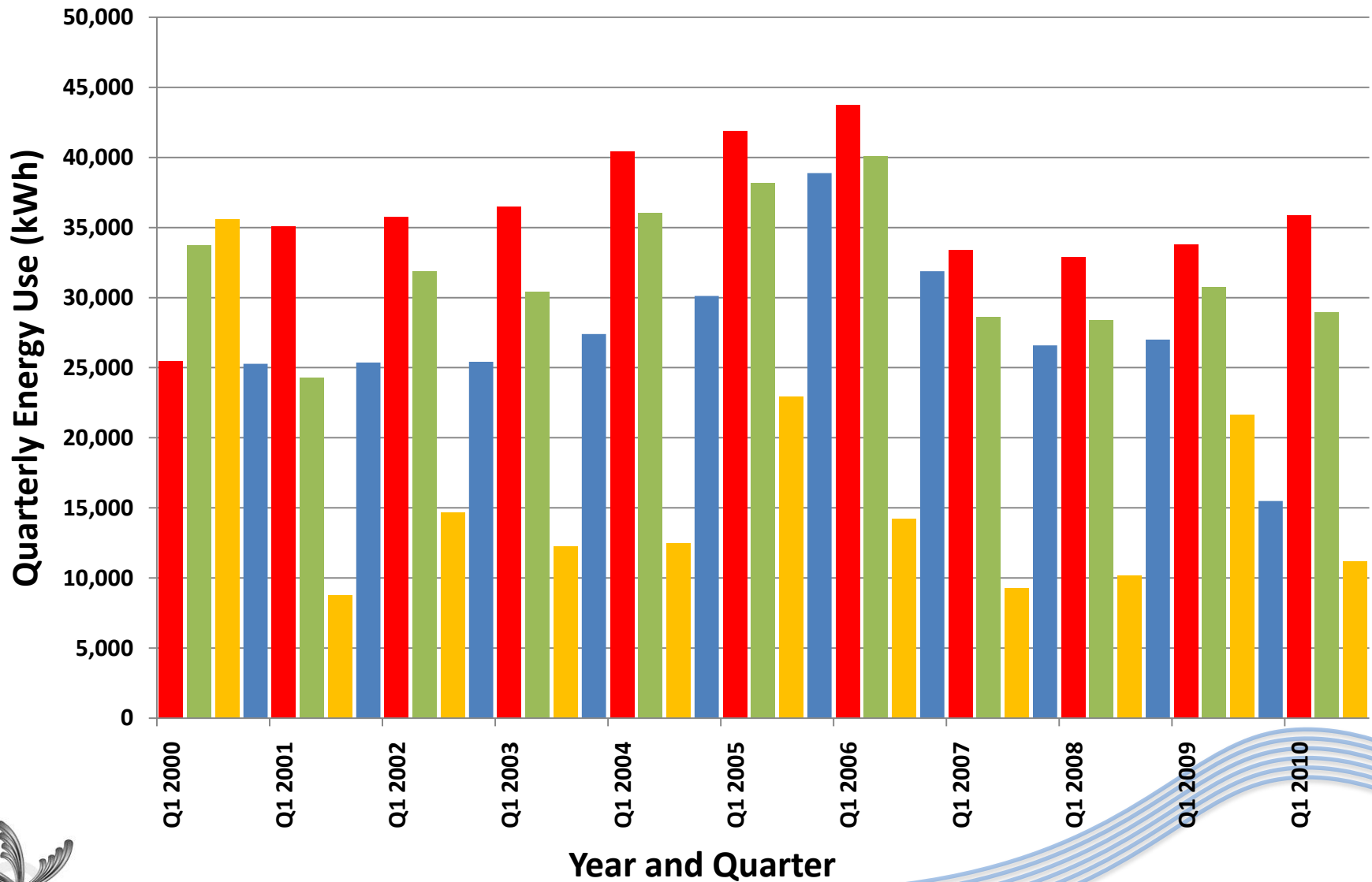
# Energy cost per ML of irrigation



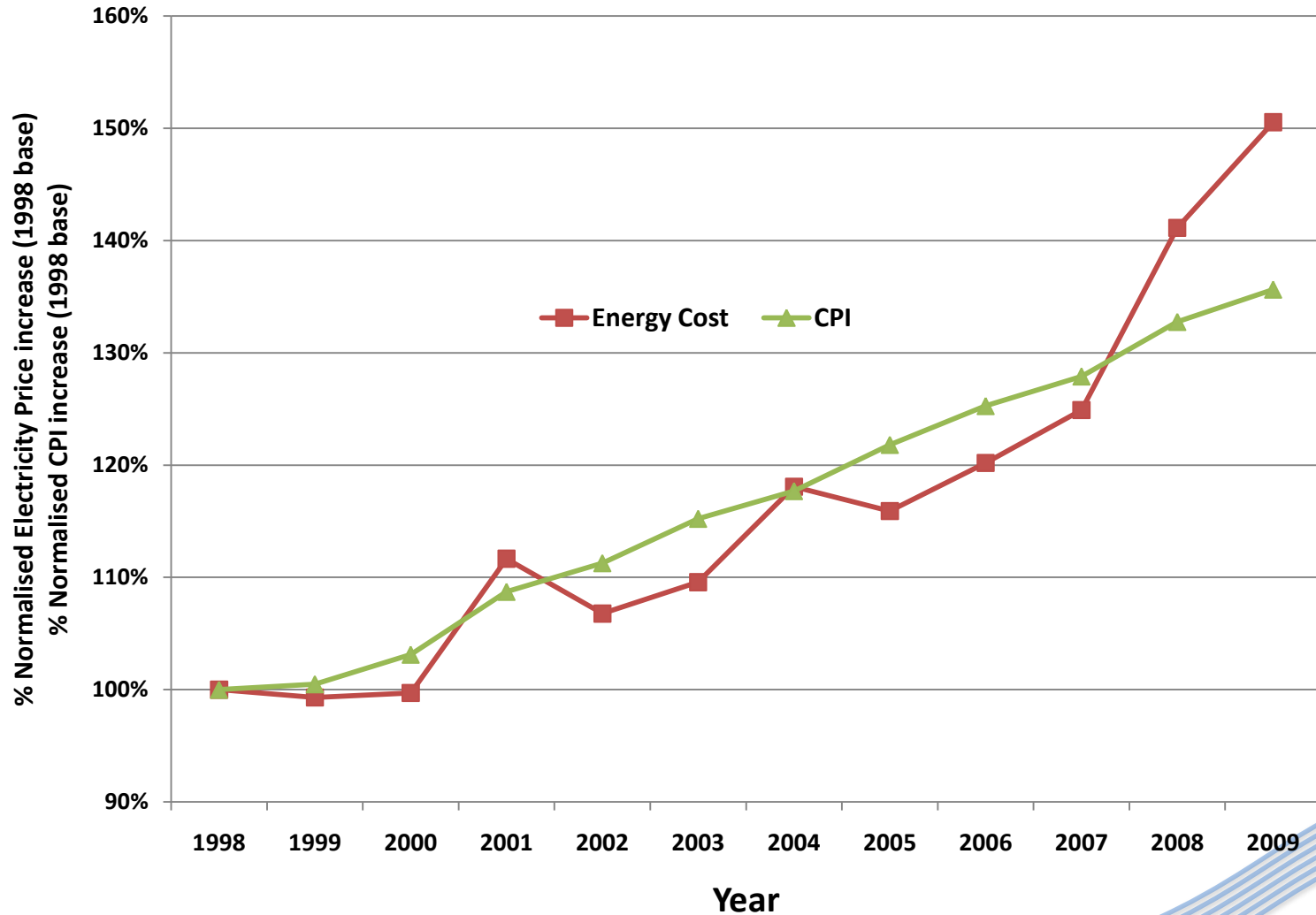
# Annual dairy energy cost and milk production



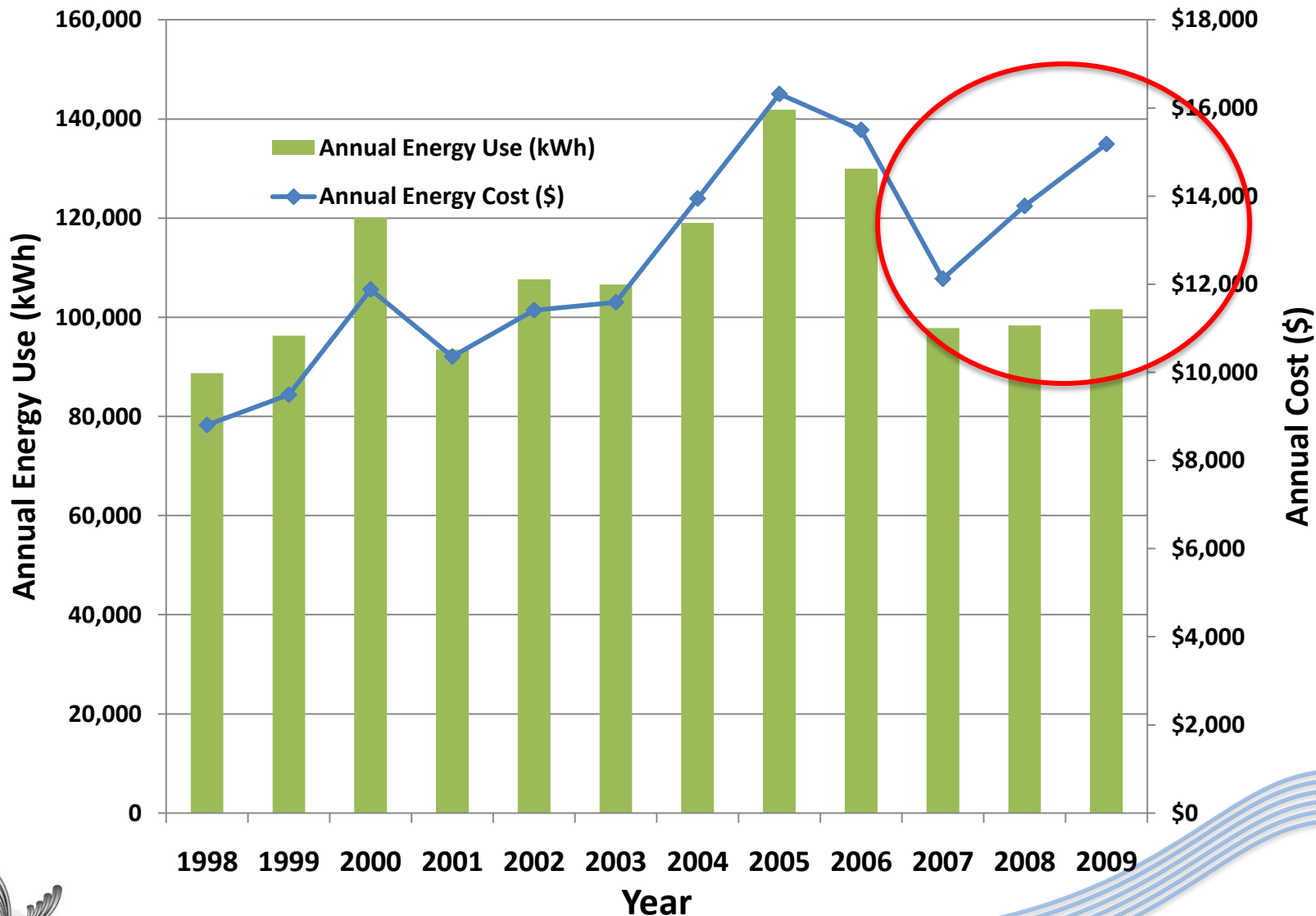
# Typical seasonal energy use variation



# Trends in the cost of energy for a typical dairy



# Annual Energy Use and Cost - Telita Dairy



# Network tariffs are not easy to understand!

Download the document “Aurora Energy – Distribution Tariffs” from Aurora’s website at:

[http://www.auroraenergy.com.au/pdf/electricity\\_network/tariffs/published\\_network\\_tariffs.pdf](http://www.auroraenergy.com.au/pdf/electricity_network/tariffs/published_network_tariffs.pdf)

Download the “Network Tariff Application Guide” document from Aurora’s website at:

[http://www.auroraenergy.com.au/pdf/electricity\\_network/tariffs/network\\_tariff\\_application\\_guide.pdf](http://www.auroraenergy.com.au/pdf/electricity_network/tariffs/network_tariff_application_guide.pdf)

## And then consider the implications of.....

1. The on-going cost of the new interval meters;
2. The implications of GST;
3. The cost of RECs;
4. The comparisons of off-peak, shoulder and peak energy times of use of the energy; and
5. The implications of the transmission and distribution loss factors.



# When Aurora Network changed the meters, they:

- Swapped the old meters for new meters (1 for 1), and did not try to reduce the number of meters used.
- Allocated a network tariff that may not be the cheapest for the site.

Aurora are under no obligation to tell you about the cheapest network tariffs to use.

# Energy meters in dairies

## Old meters



## New meters



# Some network tariffs used in the dairy:

## Network Tariff NO2

Total Charge (NUoS)	
Daily Charge	48.112 c/day
First 500kWh per Quarter	12.592 c/kWh
Remaining Consumption	10.683 c/kWh



This means that you are paying the 10.683 c/kWh for network charges, regardless of when the energy is used.

## Network Tariff N13b – a “time of use” tariff

Total Charge (NUoS)	
Daily Charge	51.255 c/day
Peak Energy	11.286 c/kWh
Shoulder Energy	7.167 c/kWh
Off-Peak Energy	0.990 c/kWh



Time Period	Tariff Rate
Week Day (0700 – 2200) (Monday – Friday)	Peak
Weekend Day (0700 – 2200) (Saturday & Sunday)	Shoulder
Any Day (2200 – 0700) (Monday – Sunday)	Off-peak



# A Take Home Message.....

If you are a contestable customer and there is a network tariff “N02” on your invoice then either:

1. Call Aurora and ask them to analyse whether it is the most cost effective tariff for you, or whether N13b would be better.
2. Call an energy consultant and ask them to investigate your invoice for all opportunities.

# Irrigation: The new network tariff N08a

- Any irrigation point using over 50 MWh per year will be contestable from June 30 2011.
- The old irrigation network tariff N08a is now obsolete.
- For the larger energy users, the existing tariff 73 & 74, which everyone is currently on, may not be as economic as being a contestable customer using tariff N08a.
- The new network tariff N08a is a seasonal tariff, with peak, off-peak and shoulder times.



# Irrigation: The new network tariff N08a

## Network Tariff N08a costs are seasonal

Time Period	Summer (1 Oct – 31 Mar)	Winter (1 Apr – 30 Sep)
Week Day (0700 – 2200) (Monday – Friday)	Shoulder	Peak
Weekend Day (0700 – 2200) (Saturday & Sunday)	Off-peak	Shoulder
Any Day (2200 – 0700) (Monday – Sunday)	Off-peak	Off-peak

## Network Tariff N08a is a “time of use” tariff

Total Charge (NUoS)	
Daily Charge	173.518 c/day
Peak Energy	12.592 c/kWh
Shoulder Energy	7.941 c/kWh
Off-Peak Energy	0.965 c/kWh



# Another Take Home Message.....

If you are a contestable customer and there is a network tariff “N08” tariff on your invoice, and some of your irrigation is during the day (0700-2200) then either:

1. Call Aurora and ask them to analyse whether it is the beneficial for you to move from NO8 to NO8a;  
or
2. Call an energy consultant and ask them to investigate your invoice for all opportunities.



## Comments on Telita Dairy

- Telita is currently not a contestable site, but like almost every dairy in Tasmania, it can choose to be as of July 2011 (Tranche 5a contestability).
- Currently supplied on Tariff 22 (General) for everything except hot water, which is on Tariff 43.
- It is *likely* that about half of the energy used on Tariff 22 is used during off-peak times.
- This means that Telita dairy is currently *likely* to be paying higher energy prices, and higher network charges than necessary.



# Comments on Pendulum Park

- Pendulum Park dairy has a contract with ERM for its energy supply.
- The dairy has one interval meter, and uses the “time of use” network tariff N13b.
- Approximately half of the energy used by the dairy is during off-peak times.
- Pendulum Park dairy is currently paying less than it would be if it was on the regulated tariff rates.
- The use of irrigation during peak times may be able to be changed to off-peak times to reduce costs. Irrigation could become a contestable contract.



# Comments on Forrest Farm Dairy

- The dairy is not on a contestable contract, but can move to a contestable contract in June 2011.
- It is likely that cost savings can be made by moving to a contestable contract.
- Forrest farm has a large irrigation load of more than 250 MWh on one installation alone. The move from network tariff NO8 to network tariff NO8a should be considered.
- The use of irrigation during peak times may be able to be changed to off-peak times to reduce costs.



# Comments on the Fielding's Dairy Farm

- The dairy shed and the and the main irrigation installation are both supplied under new contracts.
- The dairy shed uses network tariff NO2; it is likely that cost savings can be achieved by moving to N13b.
- The irrigation network tariff used is NO8; it is likely that cost savings can be achieved by moving to N08a.
- The use of irrigation during peak times may be able to be changed to off-peak times to reduce costs.

# Conclusions

1. The energy use at a sample of 40 dairy farms indicates an average cost of electricity of \$77 per cow.
2. On average \$44 per cow is spent on irrigation, and \$33 per cow on dairy shed energy costs.
3. All dairies and many irrigation points will become contestable in June 2011.
4. There are possibilities to reduce energy costs – but they are difficult to find and analyse.
5. Clear opportunities current exist with network tariffs N02 (usually in dairies), and network tariff N08 (usually for irrigation).
6. Obtaining professional help is recommended.

