



**A2EP – 2xEP Energy Productivity Summit**  
**04-05 April, 2017**  
**Australian National Maritime Museum**  
**Darling Harbour, Sydney**

**Session 03**

**2xEP by 2030 by sector – Agriculture**

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*Doing more. Using less.*



# Integrating energy productivity (EP) into business thinking

## A capacity building approach....

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energetics<sup>o</sup>



# Today's agenda.....

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- 1. An EP capacity building process (NSWF & AMPC)**
- 2. A process for integrating EP with Business planning**
- 3. Case examples NSW Farmers**
- 4. Case examples Red meat processing industry**



# Farmers are telling us what they want....

courtesy NSWF pilot survey 2015

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**“Carbon neutral. Expect the current changes will achieve that goal.”**

**“I would like to gain a clear strategy around where to best allocate our available capital”**

**“Wish to utilize solar panels to provide energy for pumping”**

**“Our board is ready and willing to invest, however we continually struggle to get clear and concise advice about best alternatives”**

**“First educate our farm hands and myself to be fuel efficient using your program”**

**“To become net self-sufficient in energy use in the longer term”**



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# The capacity building process



# Building EP capability and outcomes across industry

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EP Tools being developed and rolled out later this year for the red meat processing industry....

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- 1. Energy productivity options checklist**
- 2. Case studies**
- 3. Energy baseline and benchmarking tool**
- 4. Planning templates and process run sheet**

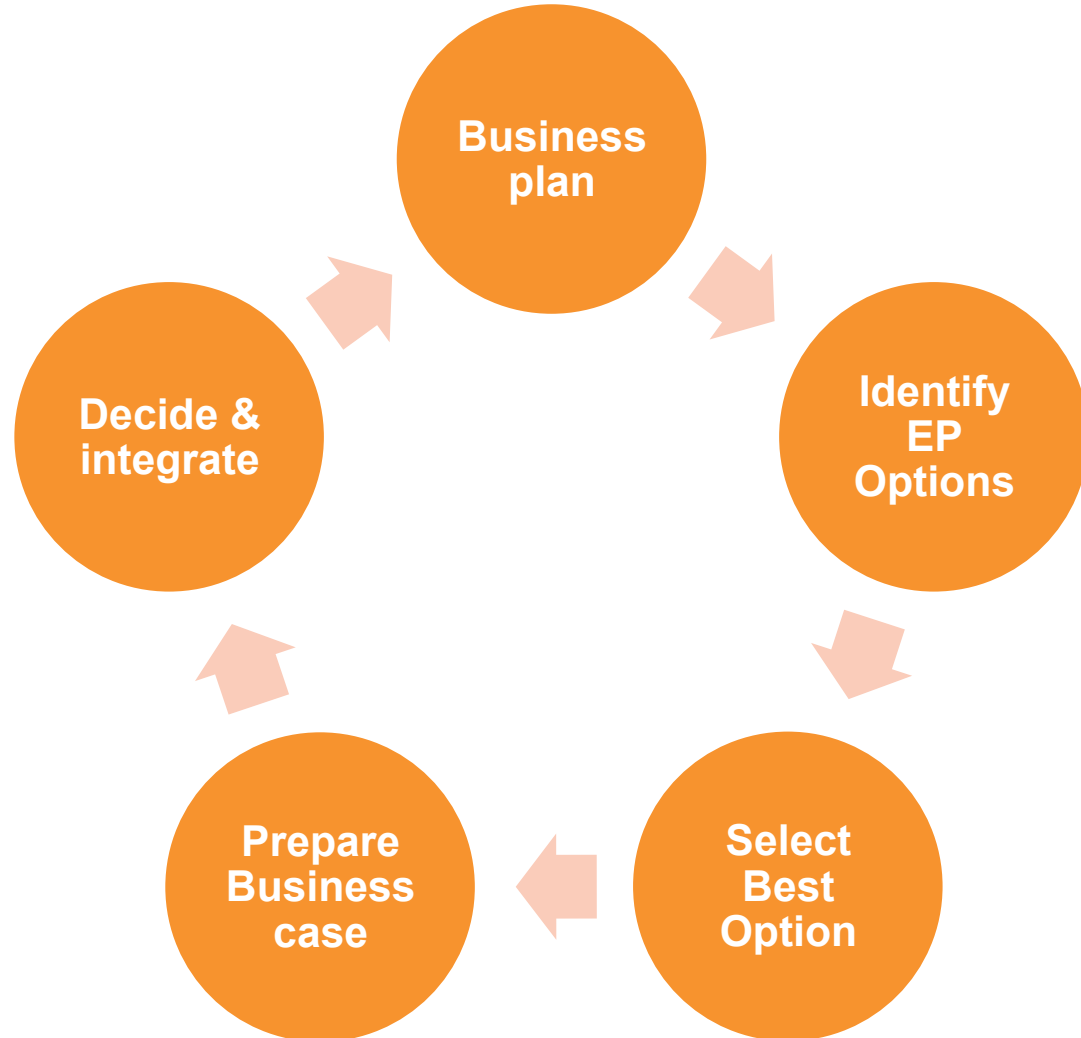
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# The business integration process





# Integrating EP and Business planning



# Energy productivity options tool

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**Business plans/  
drivers**

**Site context**

**EP opportunity**

# Identify EP options suitable for Business plans

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**Switch to checklist doc**

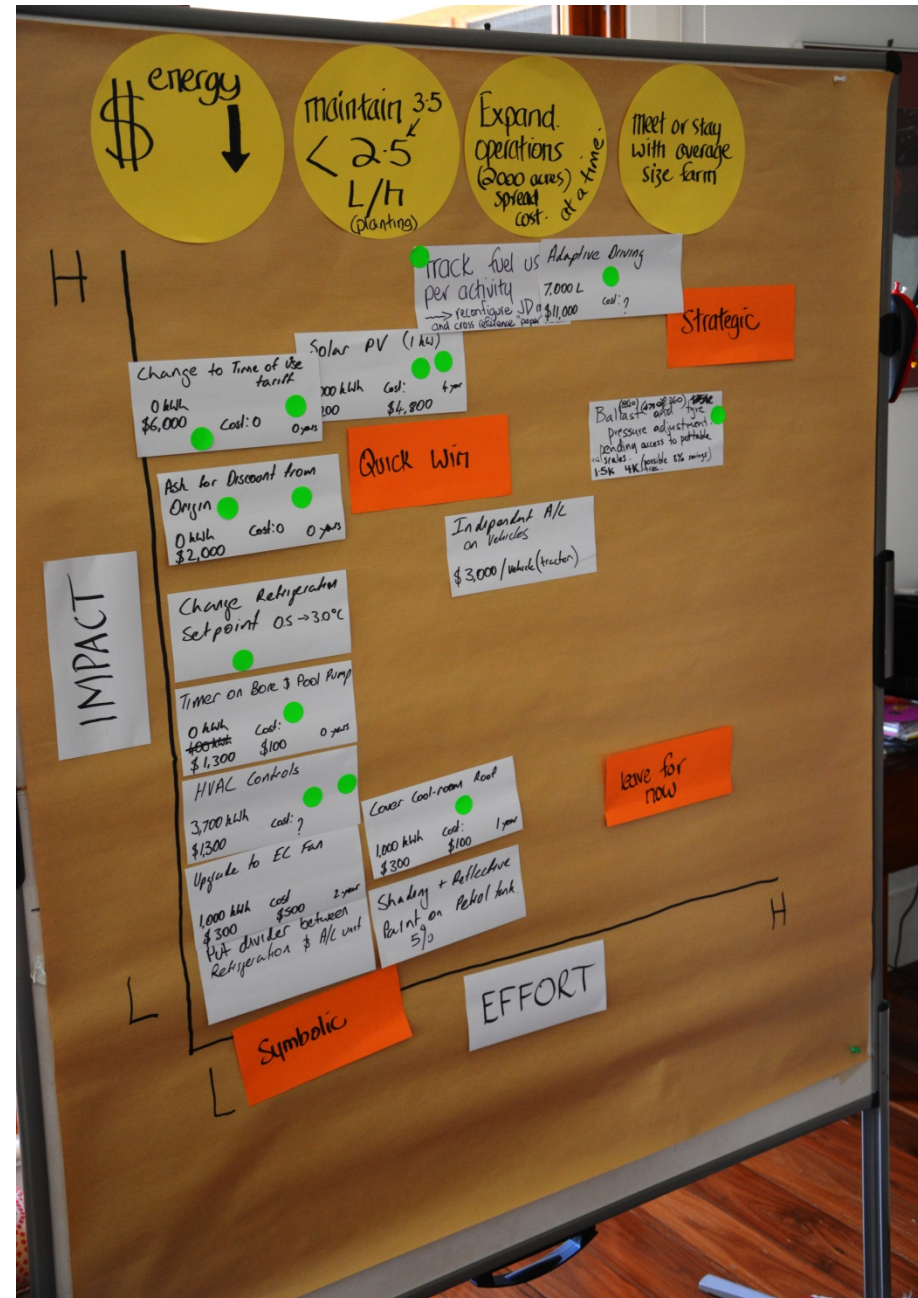


# Deciding best EP option

## Analysis



## Business intelligence



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# Case examples

# Red meat processing

# industry





# Case example Abattoir 1: NSW South Coast

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## Business plan

Expand rendering capacity 42 to 60 t/wk

## Best strategic energy productivity opportunity

Additional Biomass fuel boiler to optimise cooker capacity... alternative to LPG

## Energy Productivity improvements

40% increase in production with the same or less cost in energy



# Case example Abattoir 2: Southern Queensland

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## Business plan

**Increase throughput from 175 to 750 hot standard carcass (HSC) per day (2-7kt per year) by building a new plant**

## Strategic energy productivity opportunity

**99 kilowatt Solar PV system includes energy supply negotiations**

## Energy Productivity improvements

**\$38 per t HSC to \$31 per t HSC**



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# Case examples NSW Farmers





# Outcomes from farms using NSWF energy innovation tools .....so far

# Farm 2 – Broadacre dryland/irrigation

## \$500k diesel, \$60k electricity

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### Buy Better

- Changing Tariffs and Pricing with Origin/Country Energy
  - Requested NSW Farmers bulk buying discount: Savings \$8,000 p.a. (13%)

### Use less

- Improving the efficiency of tractors, mobile equipment and pumping:
  - Optimising tyre pressure and ballasting: Savings ~\$15,000 p.a. (3%)
  - Adaptive Driving and fuel use monitoring: Savings ~\$10,000 p.a. (2%)
  - Low load pump and pumping control: Savings ~\$30,000 p.a. (5%)

### Generate your Own

- Electricity generation to offset purchases from the grid:
  - Solar PV system of 5 kW near house: Savings ~\$1,500 p.a. (3%)



# Farm 5 – Sheep & crops near Jerilderie

## \$600k diesel, \$40k electricity

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### Buy Better

- Changing Tariffs and Pricing with Origin/Country Energy
  - Already on NSW Farmers bulk buying discount: Savings \$8,000 p.a. (up to 19%)

### Use less

- Improving the efficiency of tractors and mobile equipment:
  - Already Optimising tyre pressure and ballasting: Savings ~\$7,000 p.a. (5%)
  - Electricity monitoring PFC Voltage optimise - \$6,000 p.a.

### Generate your own

- Electricity generation to offset purchases from the grid:
  - Solar PV system of 10 kW near house: Savings ~\$16,000 (40%)



# Farm 18 – Dairy near Wagga Wagga

\$30k diesel and \$108k electricity,

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## Buy Better

- Changing Tariffs and, or requesting discounts
  - **NSW Farmers discount (from 12-17%) : Savings \$2,000 p.a. (usage only)**

## Use less

- Improving the energy efficiency/cost of cultivation & irrigation:
  - **Solar pumping stock & domestic: savings \$1500 p.a.**
- Optimise dairy processing plant
  - **Solar thermal hotwater system :Savings \$15,000 p.a**

## Generate your own

- Electricity generation to offset purchases from the grid:
  - **Biogas for gas fired engines Savings ~\$50,000 p.a. (50%) 10 year pb**



# Farm 19 – Mixed cropping & cattle near Corowa \$12k diesel and \$8k electricity,

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## Buy Better

- Changing Tariffs and Pricing with Origin/Country Energy
  - **NSW Farmers bulk buying discount: Savings \$1,200 p.a. (16%)**

## Use less

- Improving the energy efficiency of irrigation & cultivation:
  - **Monitor diesel use -optimise wheel slip: Savings ~\$1,500 p.a. (5%)**
  - **Configure channel pump and dam pumps to service additional pivots – increase cropping from 2-3 summer crops Savings ~\$tbi**

## Generate your own

- Electricity generation to offset purchases from the grid:
  - **Optimise existing 10kW Solar PV system using battery storage : Savings ~\$4,500 p.a. (85%)**



# Could your industry sector benefit from this approach to energy productivity ?

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# NSW Farmers Energy innovation kit

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<http://www.nswfarmers.org.au/?a=33197>

