

# MONASH INDUSTRY TEAM INITIATIVE (MITI) 2016-2017

## Alternative Power Solutions on Dairy Farms

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### Project Scope and Context

Parmalat places a strong focus on the long term sustainability of their 170 dairy farms located throughout Victoria. This, combined with expected annual increases to electricity costs, highlighted the need for reductions in electricity consumption in the dairy shed to be explored. Additionally, the potential for alternative renewable energy sources was looked into, in order to reduce the carbon footprint of the dairy industry and assess the possibility of transitioning to grid independent systems.

### Aims

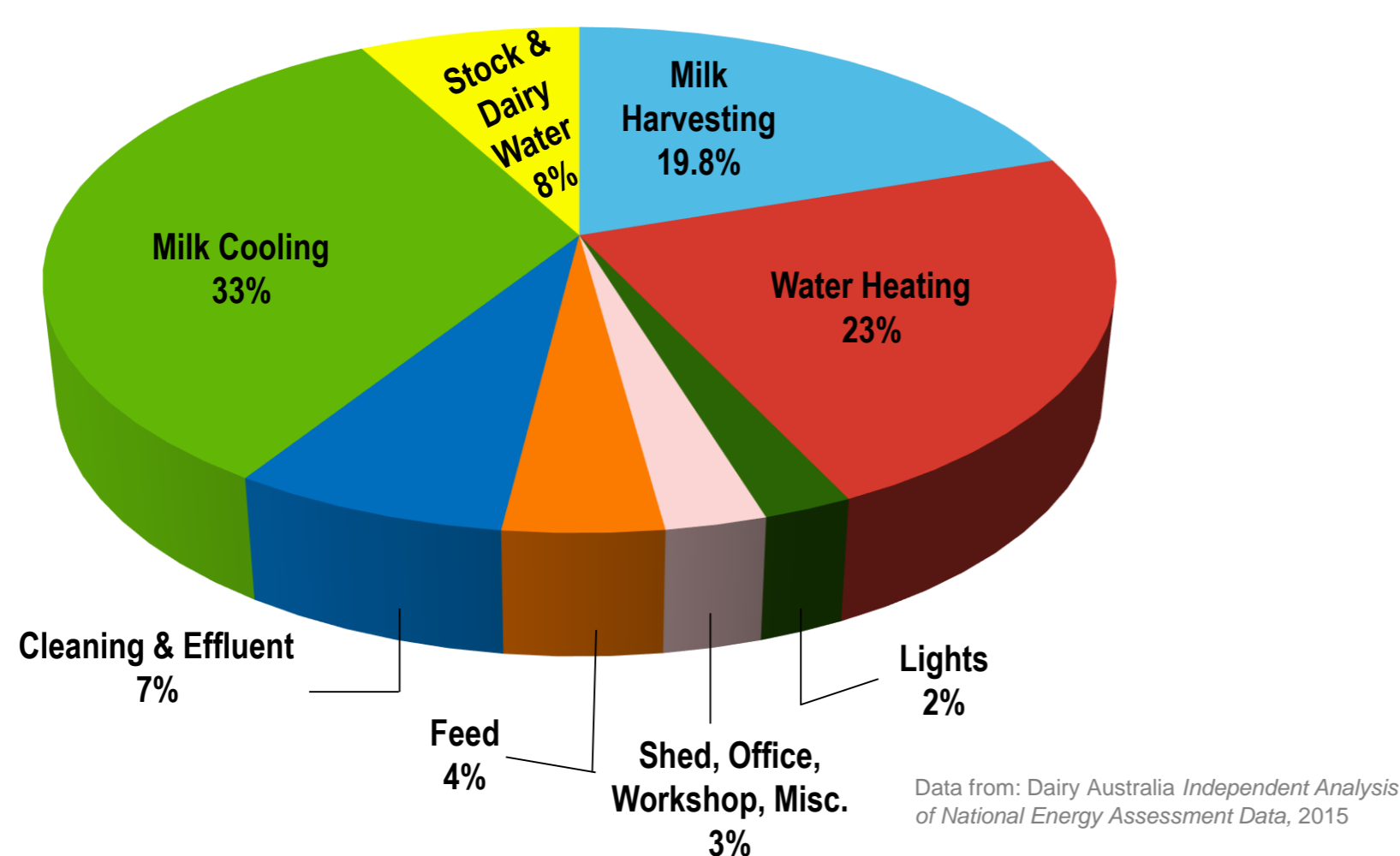
- Develop a tool that farmers could use to assess their dairy's energy use
- Provide options for which farmers may upgrade their farms based on reduced energy consumption and return on investment
- Inform farmers about on-site renewable energy generation options



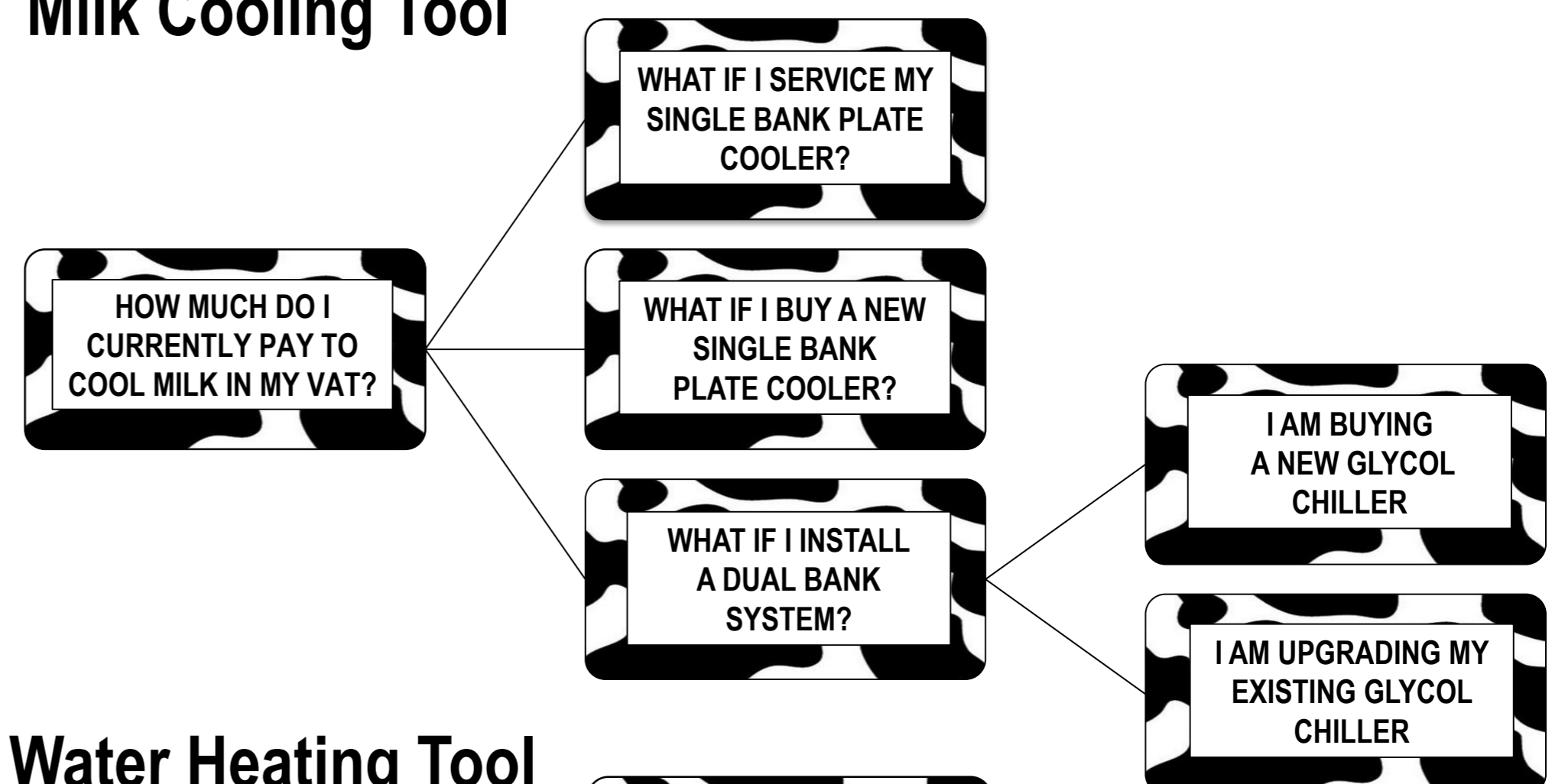
### Outcomes

- Established the knowledge gap in assessing energy saving options through on farm visits and discussions with dairy farmers
- Conducted literature review and on-site case studies, determined water heating and milk cooling are the highest energy consumption processes
- Contacted relevant companies within the industry to gather information and estimate costs for new dairy equipment
- Developed a tool for farmers to assess energy use compared to regional and state averages
- Developed a water heating and milk cooling tool for farmers to assess energy efficient upgrade options
- Produced a step-by-step solar PV brochure to inform farmers about if they should invest in solar energy, and how to do so

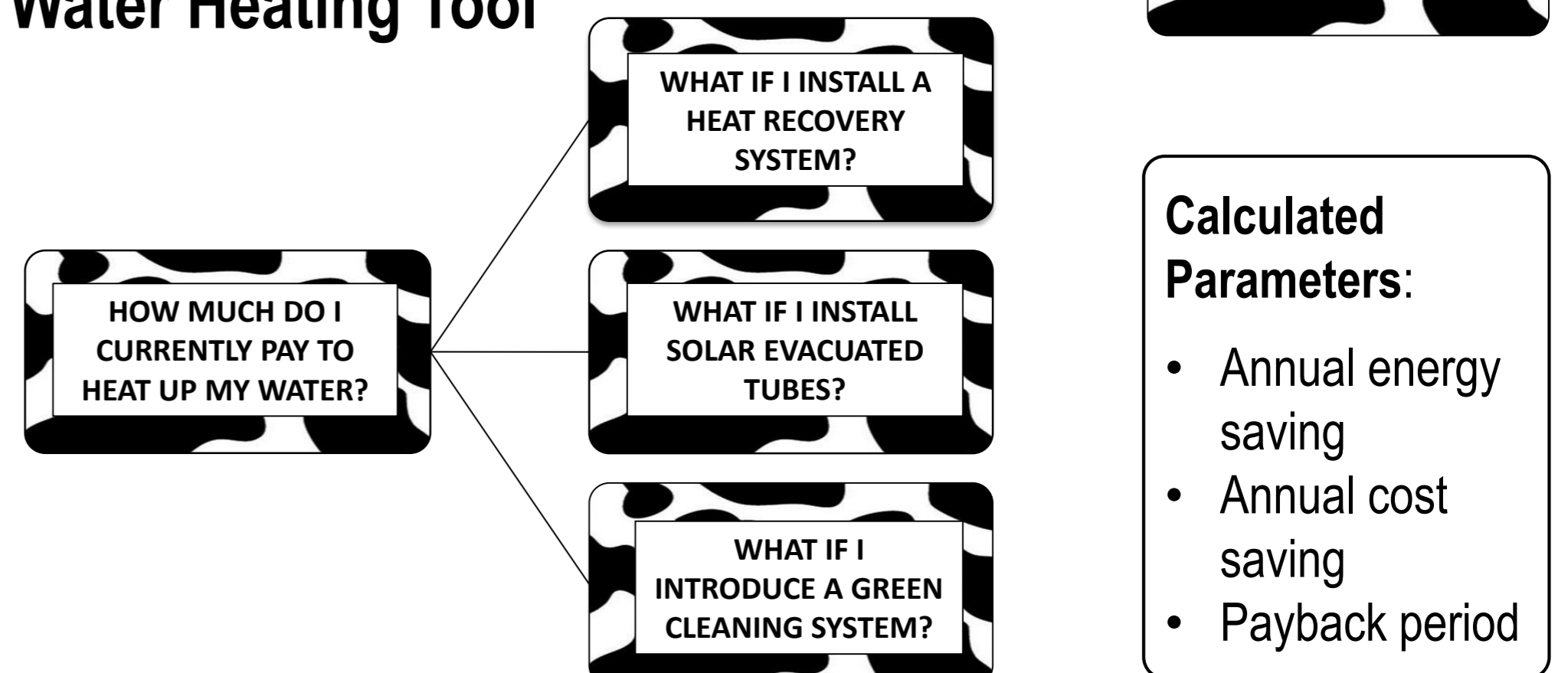
### Dairy Shed Energy Consumption Categories



### Milk Cooling Tool



### Water Heating Tool



**Calculated Parameters:**

- Annual energy saving
- Annual cost saving
- Payback period

### Challenges

- Lack of experience working in the dairy industry
- Understanding farmer's needs and attitudes
- Differences between every farm's unique setup
- Initial development and direction of the project
- Collecting reliable data and information from equipment manufacturers

### What have we gained?

- Real world experience working in a business environment
- Practical knowledge about dairy farms and solar energy generation (scan QR code)
- Experience in building business relationships
- Improved collaboration and teamwork skills
- Turning theory into real people solutions

