# Exploring Solar Thermal Integration Opportunities for the Tourism and Hospitality Sector in Zimbabwe

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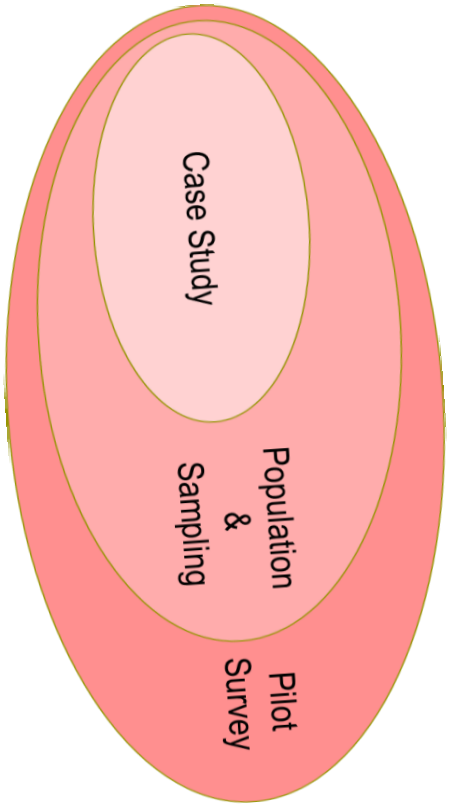
# Introduction

- Energy deficit in Zimbabwe (NEP,2012) in excess of 1 000 MW (about 45 %) covered through imports.
- Shortages of foreign currency.
- National Solar Water Heating program targeting to save 300 MW from retrofitting existing geysers. (Herald,2015)
- Solar presents unlimited potential in the hospitality industry. Water heating accounts for almost 30% of energy consumption in hotels (Urban,2011).
- Solar Water Heating would reduce coincident electricity winter peak demand by 13% and reduce final energy demand by 27%, assuming a 50% penetration rate of Solar Water Heating Systems (Batidzirai, 2009).

# Methodology and survey




| AREAS | RESEARCH AREA SELECTION CRITERIA | | |
|---|---|---|---|
| | No of Major Hotels (150 rooms and above) | Tourist Attraction or Business | Type of Tourism or Business |
| **Bulawayo** | 2 | Matobo National Park | Educational, Cultural and Sport |
| **Harare** | 5 | Business | Educational and Sport |
| **Victoria Falls** | 1 | Victoria Falls | Cultural and Historic |

# Summary of results

| | |
|---|---|
| Solar collector Array Size | 175 $m^2$ (122.5 $kW_{th}$) |
| Annual solar yield | 149 450 $kWh_{th}$ |
| Avoided CO2 | 51.6 tons per year |
| Installed system cost | **$ 71 648.61** |
| **Energy savings over 25 years** | **$367 273.00** (non discounted) |
| Pay Back Period | **4.88 years** |

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