

# Analysis of energy efficiency and consumption in South African steel foundry

Ms Z Rasmeni \* and Dr X Pan \*\*

Metal Casting Technology Station, University of Johannesburg,  
South Africa

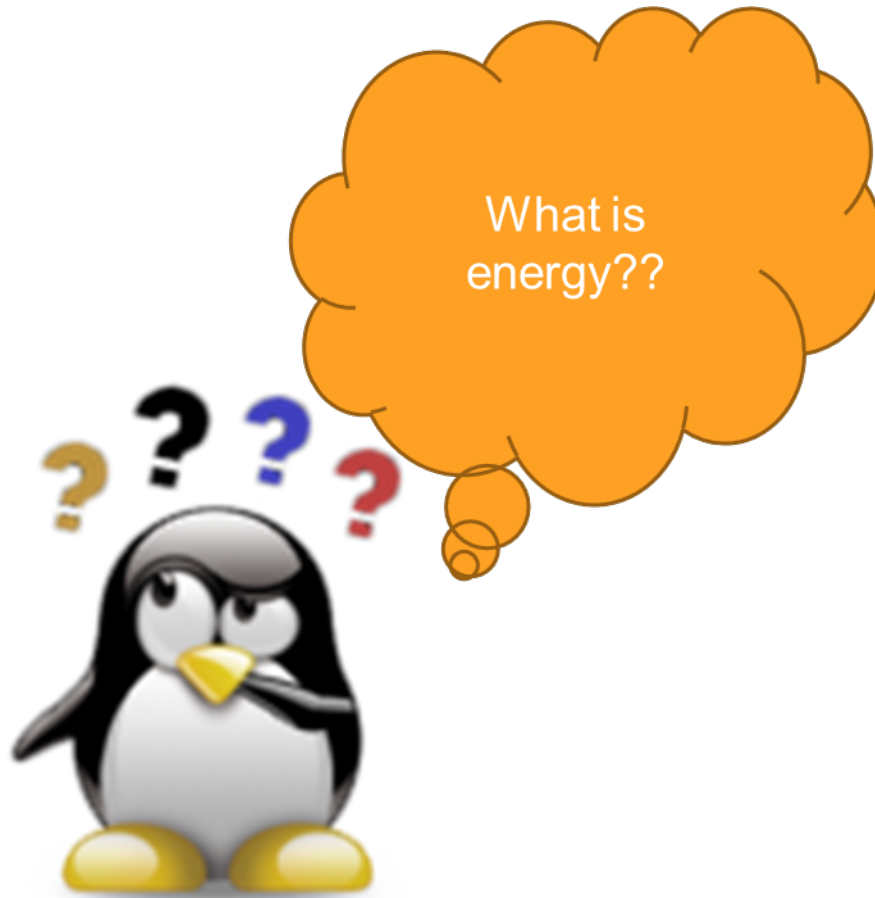
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Africa

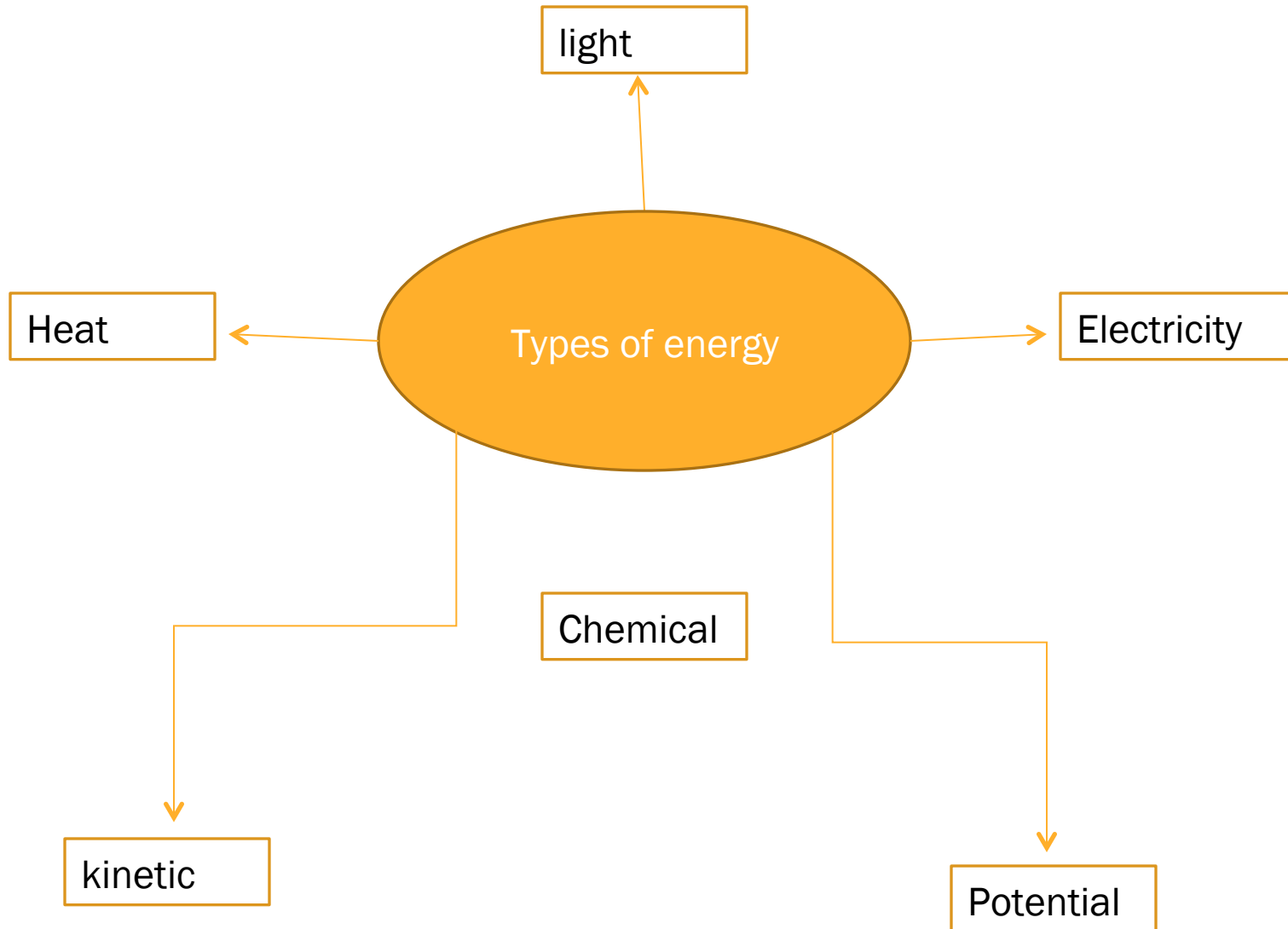
# Presentation Outline

- Introduction
- An over view of energy efficiency in South African foundries
- The improvement of energy efficiency
- Challenges faced on the improvement and implementation of energy efficiency
- Project briefing



# Introduction





# What is energy efficiency?

- Using less energy to accomplish the same task

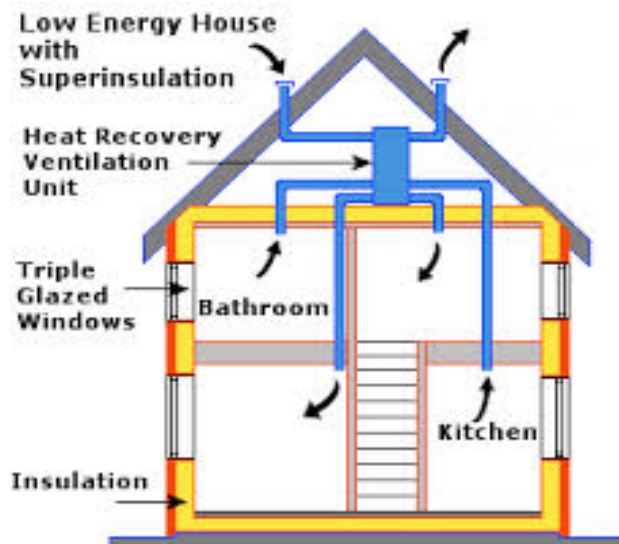


Figure 1a: Insulated house

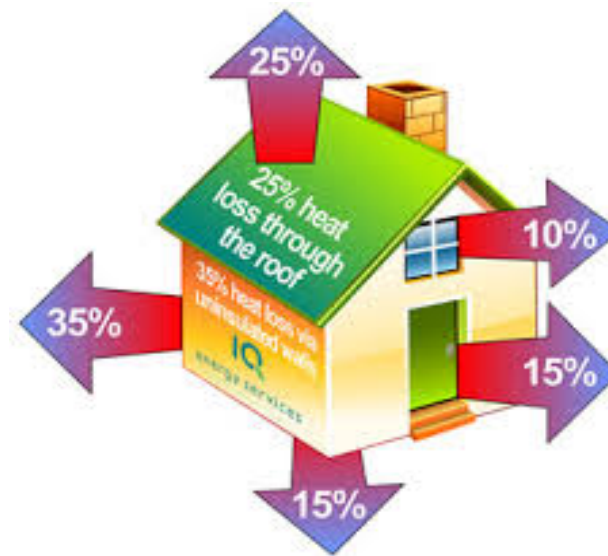


Figure 1b: un-insulated house

# Incentives "WHY"

- o Brings awareness and knowledge
- o Better understanding of current energy usage and enable future predictions
- o Saves on cost
- o Reduces production and product cost
- o Has a positive effect on competitiveness
- o Reduces risk/ exposure to rising energy price

### International Electricity Price Survey - 2013

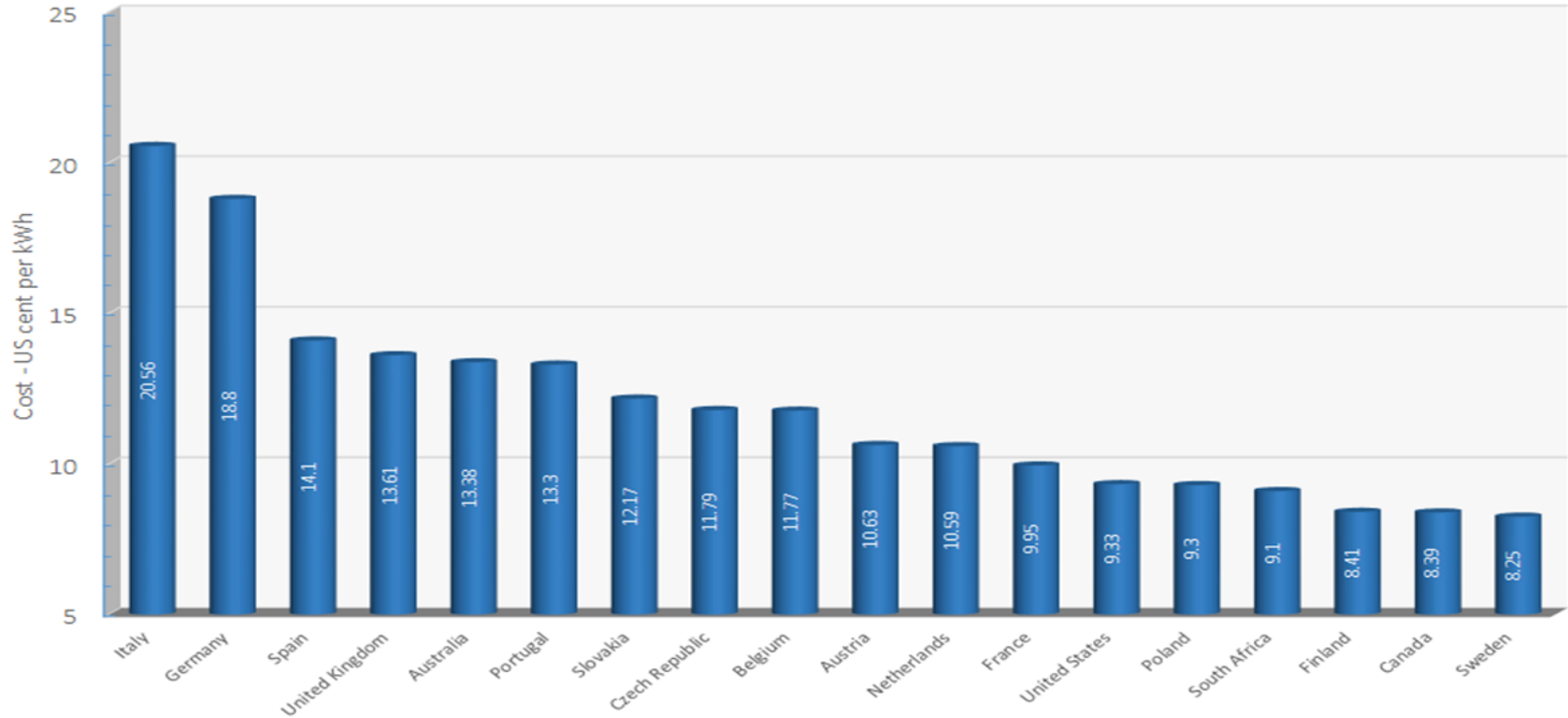
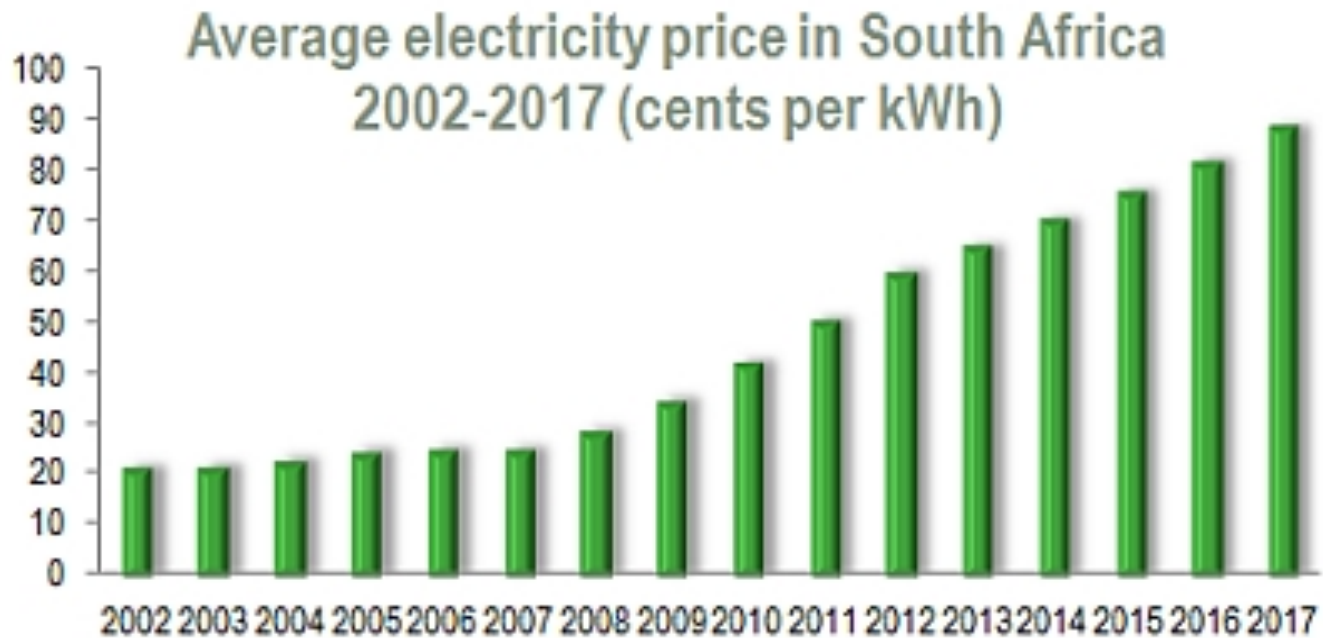


Figure 2: International Electricity Survey ((NUS Consulting Group International Electricity & Natural Gas Survey, 2013)



Source: Nersa

Figure 2b: Average electricity price in South Africa 2002-2017



# Energy efficiency Overview

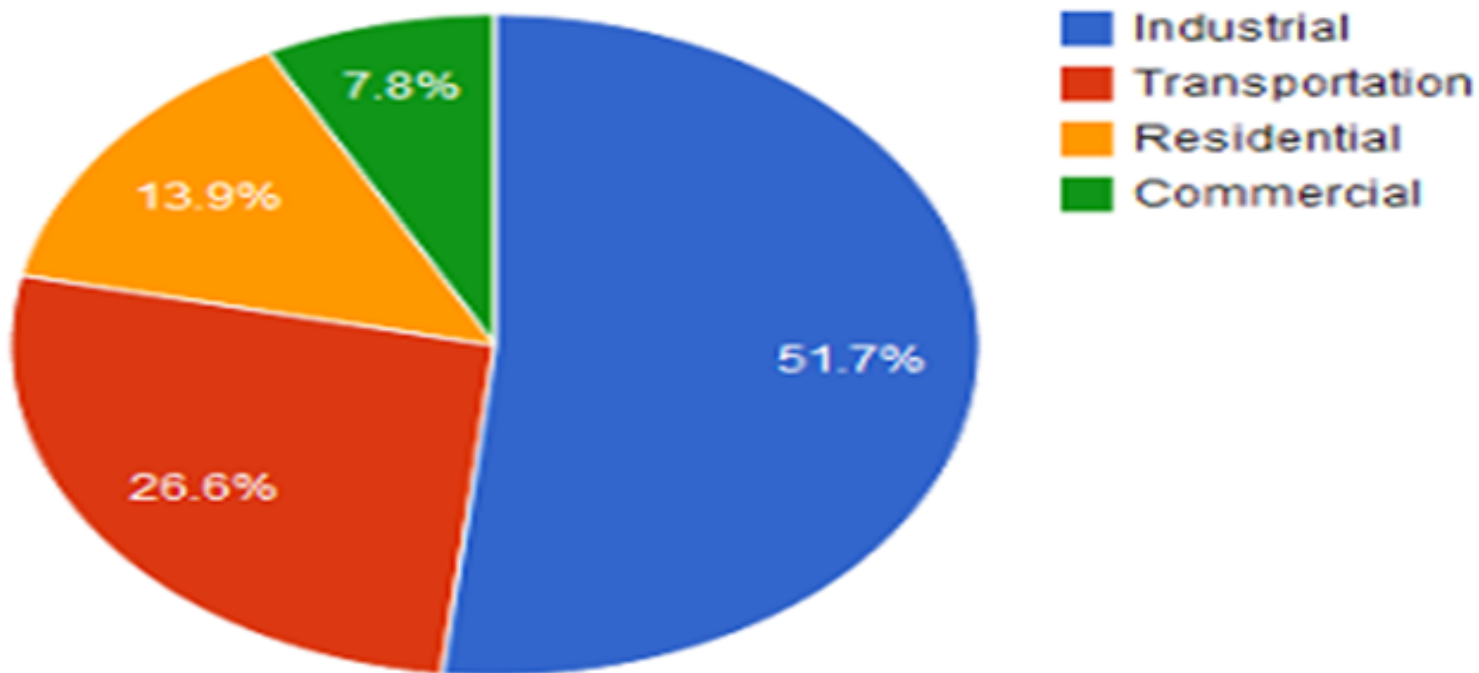


Figure 3: World's energy consumption by sector ( EIA, 2012)

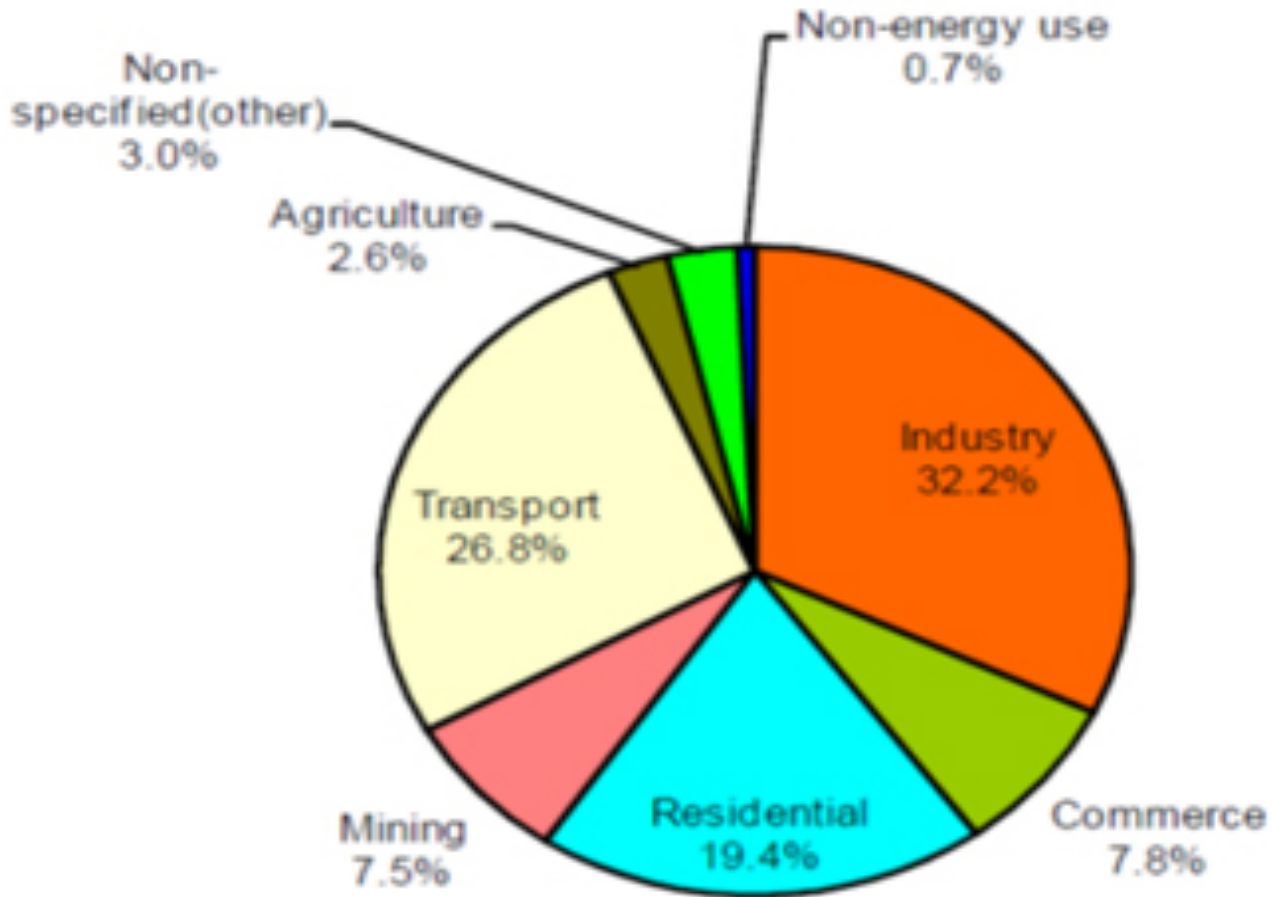


Figure 4: South African Energy consumption by sector  
( Promethium carbon 2006)

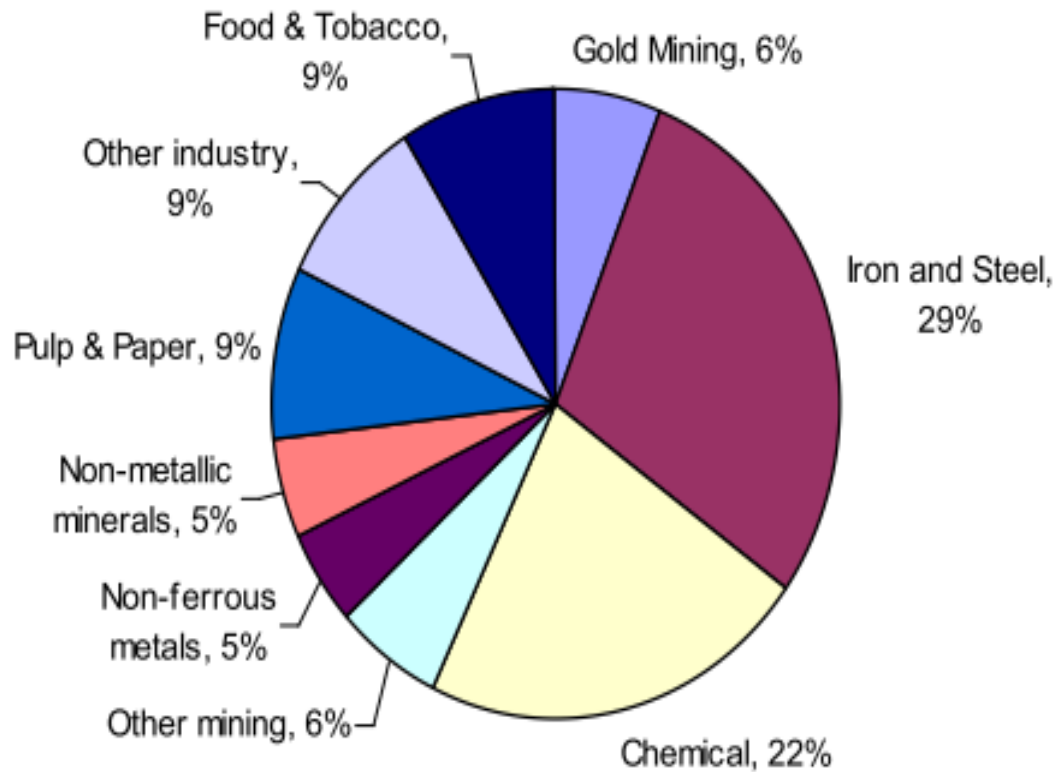


Figure 5:Energy consumption by sub-sectors

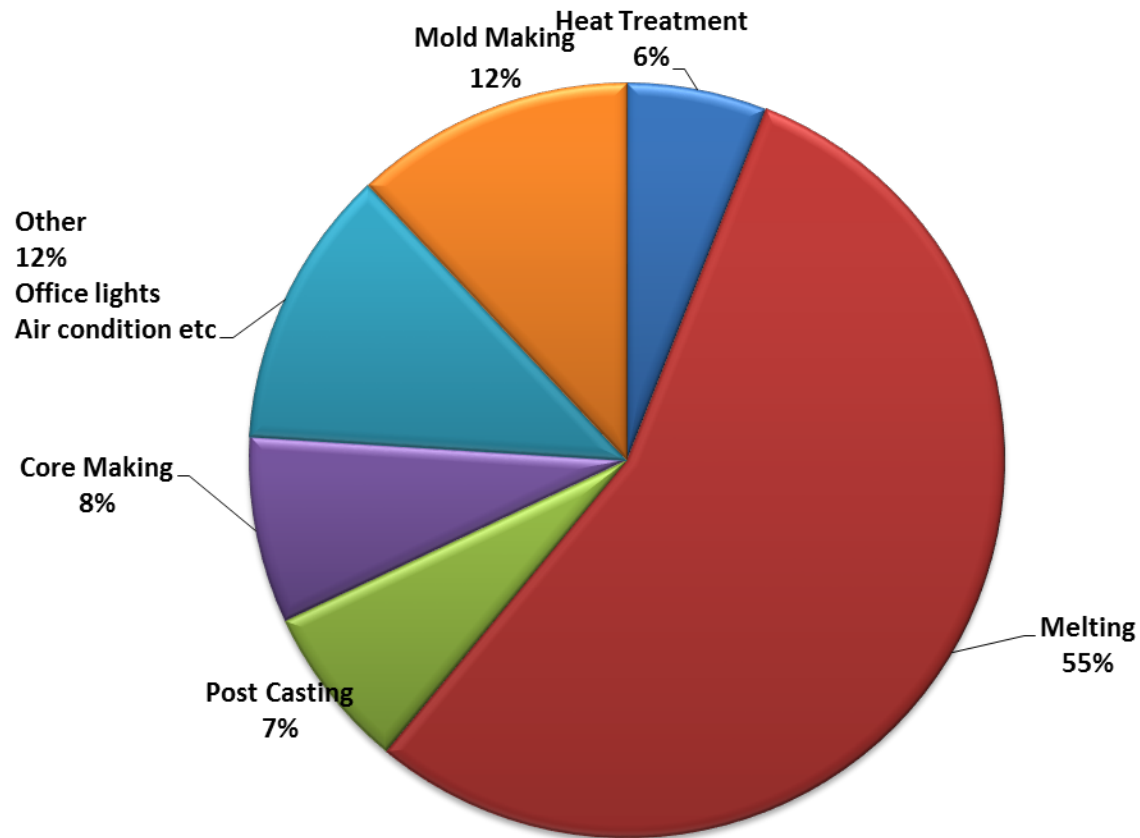


Figure 7: Energy consumption by foundry departments (Davies,2012)

# Energy efficiency developments in S.A

- **Mandatory energy efficiency standards:**
  - Appliance labeling- Potential savings with labeling or higher efficiency standards are estimated at 3 PJ in 2012
  - Certification and Accreditation- The Strategy makes use of several instruments where inspectors or auditors will be expected to carry out certain technical functions, or studies
  - Education and awareness-Information and generic awareness are key elements to achieve success in terms of changing South Africa into a more energy efficient society

# Contd....

- Research and technology-Technological options represent significant potential for energy efficiency improvements
- Energy audits -Energy audits have been internationally used across all sectors to identify efficiency measures that can be implemented in a cost-effective manner
- Energy management-enables the formalisation of **monitoring, evaluating** and **targeting** energy consumption as well as providing sector-specific **benchmarking** information

# CHALLENGES FACED ON ENERGY EFFICIENCY

- **Attitude:** The fear of appearing incompetent.
- **Resistance to change:** Fear of trying on new technology.
- **Perception:** Energy is too cheap.
- **Uncertainty regarding the future:** Investors are sometimes reluctant to commit resources to long-term projects.
- **Lack of capital:** Some energy efficiency measures involve the installation of expensive capital equipment (Fawkes, 2005).



### Summary of Barrier Ranking

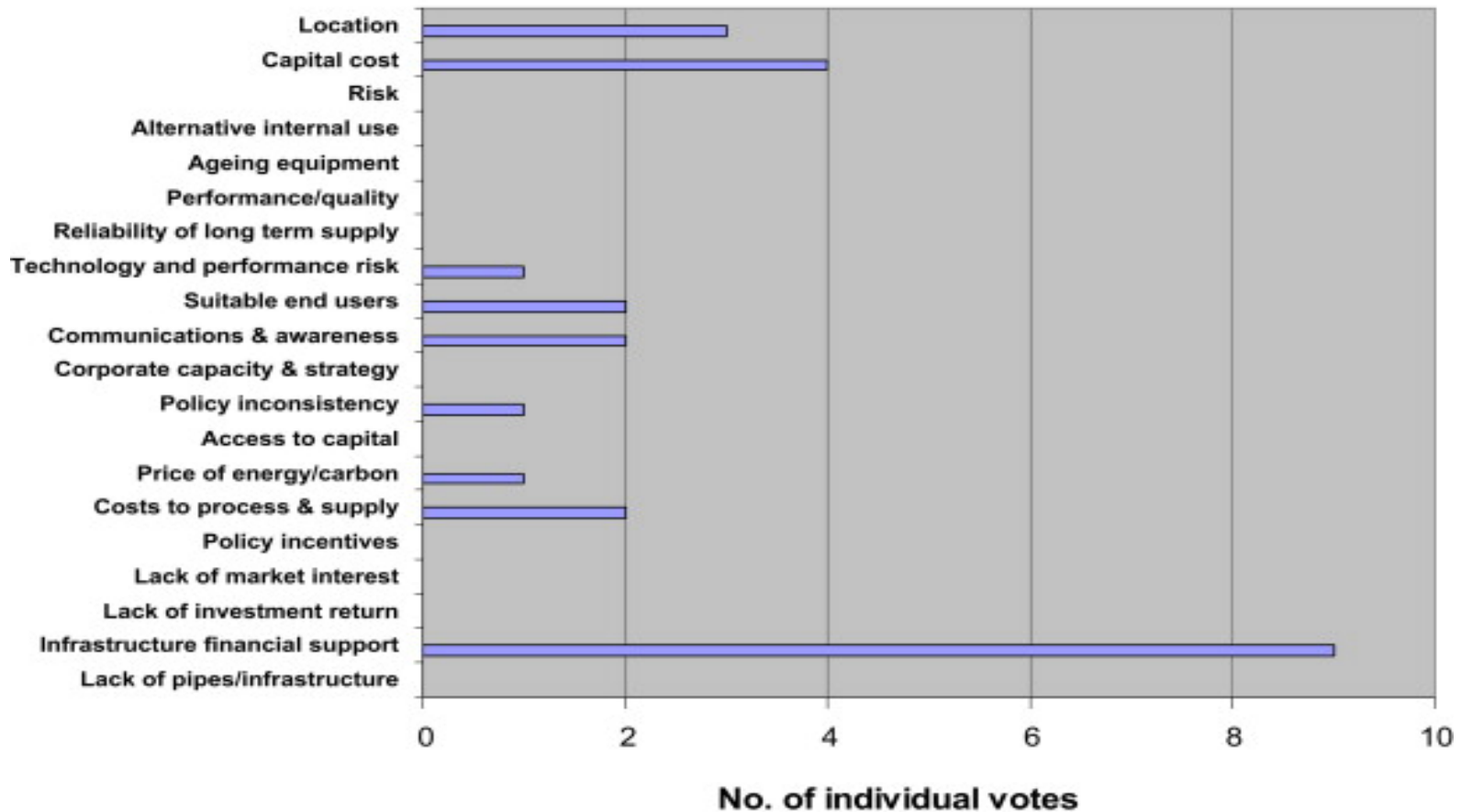


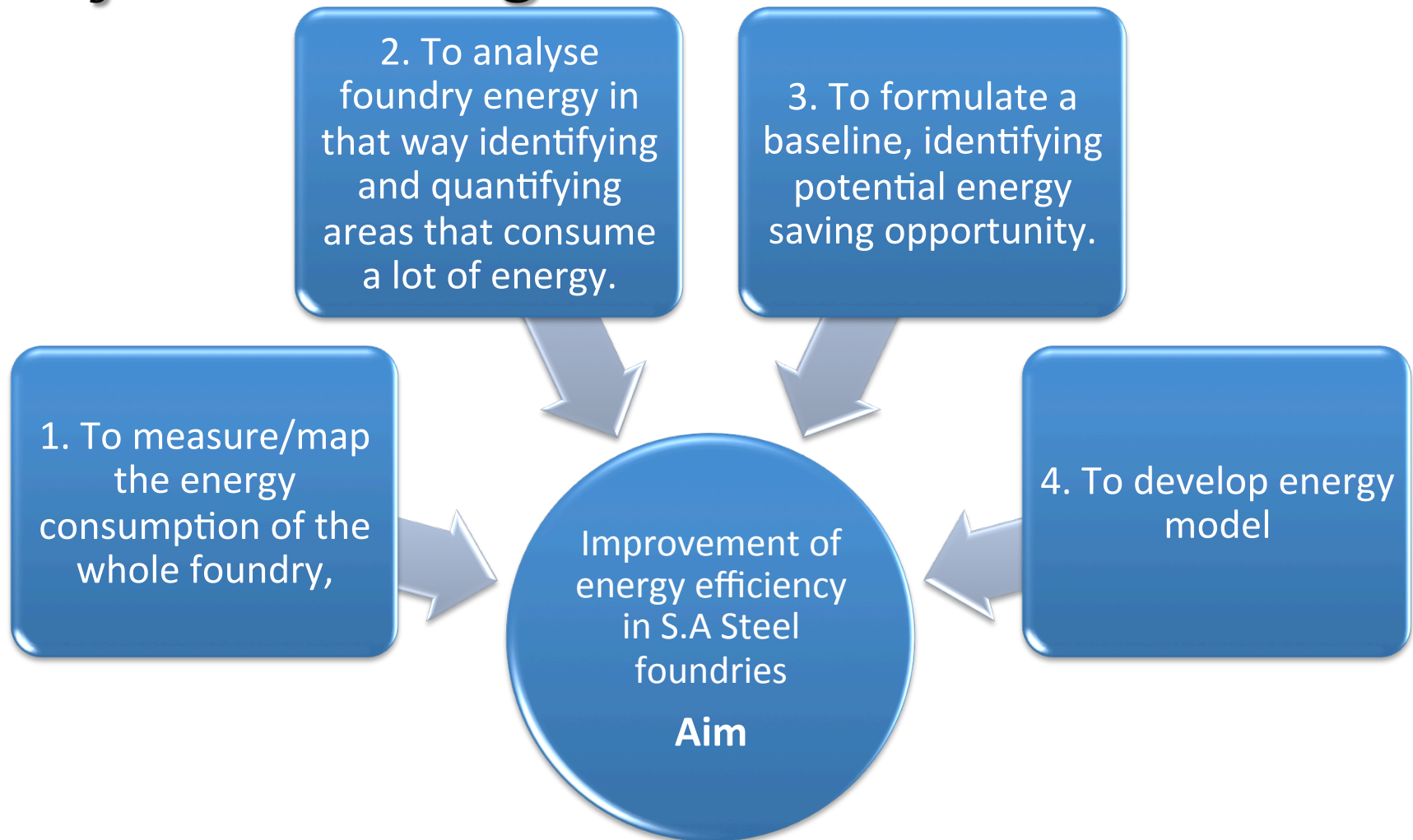
Figure 8: Summary of barrier ranking regarding energy efficiency (Fawkes, 2005)

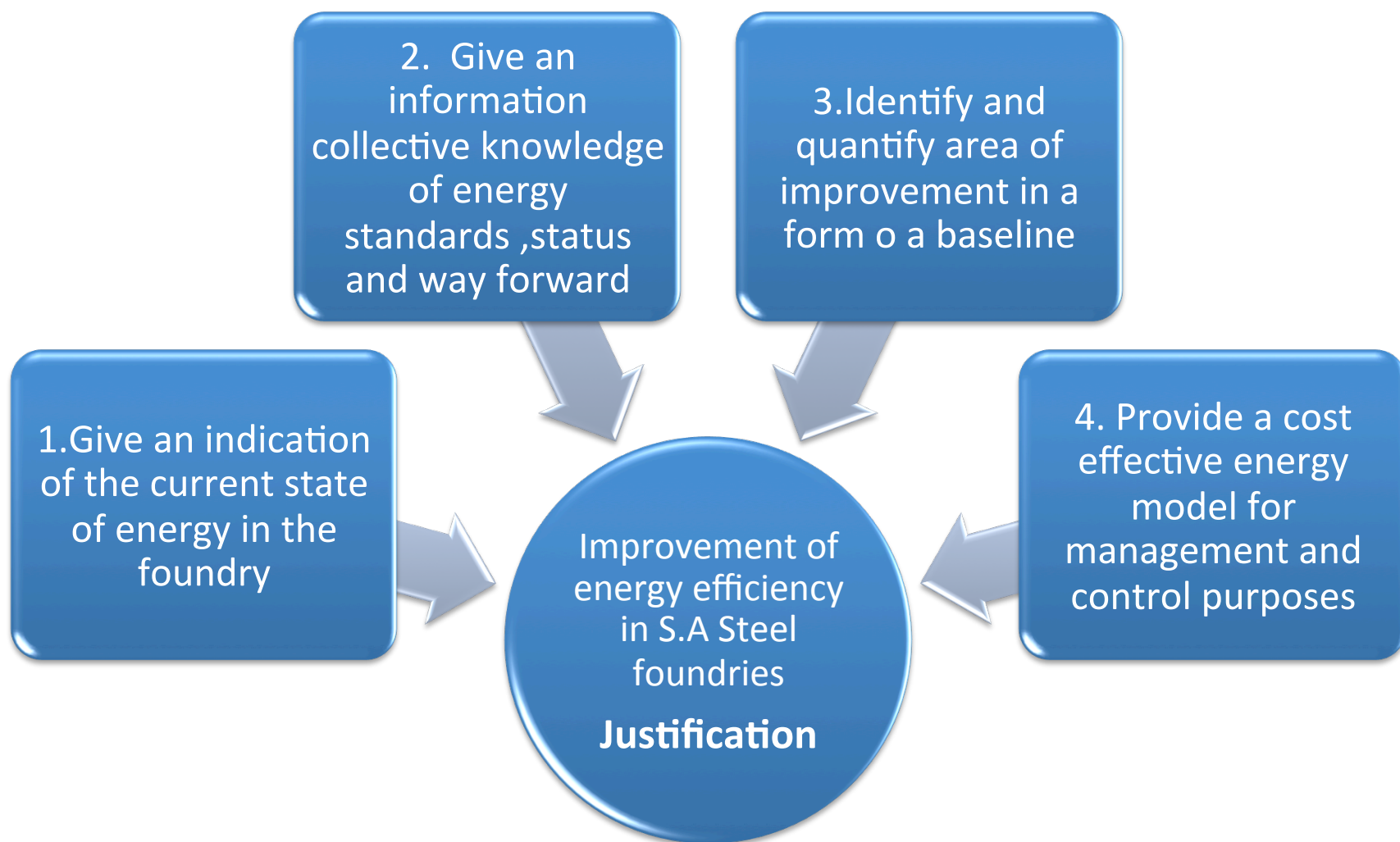


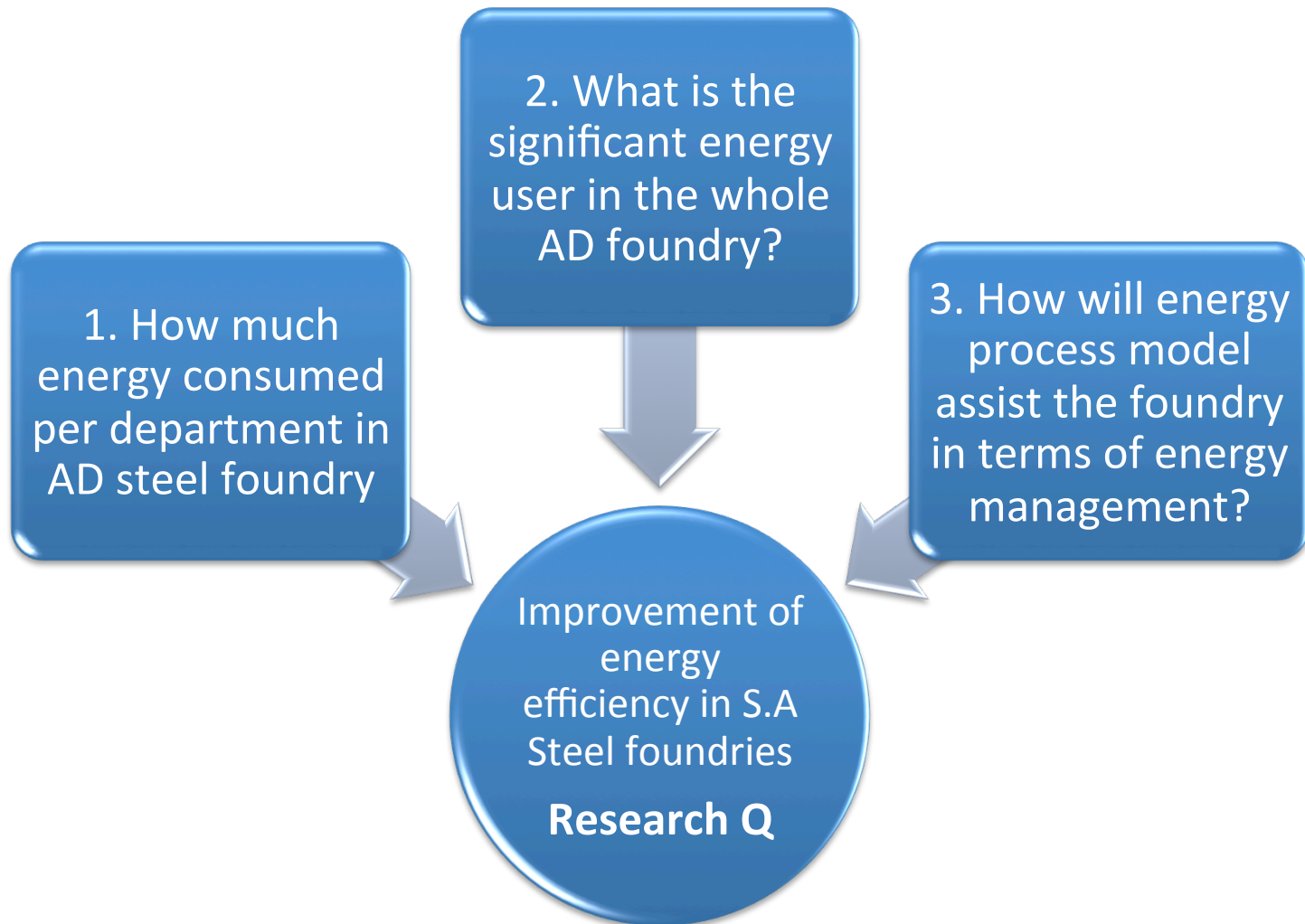
# Conclusion

An analysis of energy efficiency on South African foundry can serve as an alarm to South African foundries on energy saving. This has been done by looking at the overall energy usage, the current development and challenges faced on implementing energy saving method. Therefore, by so doing it will enhance better understanding and highlighting the importance of energy efficiency in the foundry industry thus results in reduction of cost of energy.

# Project briefing









# Acknowledgements

I would like to thank the following persons for their contribution in making this presentation possible:

Supervisor Dr Xiaowei Pan

Mr. Caesar Mahlami

Metal Casting Technology Station (M-Tech) Sponsor

University of Johannesburg(UJ)

# Presenters information

- Rasmeni
- Zelda
- Metal Casting Technology Station-University of Johannesburg
- 0726102690
- [zeldarasmeni@gmail.com](mailto:zeldarasmeni@gmail.com)



