

University of Dublin



# TRINITY COLLEGE

## ***Nanogrid Yoke***

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# Declaration

I hereby declare that this project is entirely my own work and that it has not been submitted as an exercise for a degree at this or any other university.

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Brian McNestry, May 5 2017

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## **Abstract**

This is the abstract

# Acknowledgements

Acknowledge the various people here

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# **Part I**

## **Abstract**



## **Part II**

# **Introduction**

## **Part III**

# **Background**

## **Chapter 1**

# **Decentralised Grid**

At present in Ireland and in many other countries, the national electric grid infrastructure is controlled by a central body, namely the ESB. While there are several electricity providers in Ireland, such as Bord Gáis Energy, SSE Airtricity and Energy Ireland, each of them use the same distribution network as one another. Essentially the power is provided from each of the different providers and then the routed into the same centralised hub belonging to the ESB and then the power

## **Chapter 2**

# **Smart Grid**

### **2.1 Nanogrids**

## **Chapter 3**

# **Auctions**

## **Chapter 4**

# **Game Theory**

### **4.1 Cooperative Game Theory**

### **4.2 Non-Cooperative Game Theory**

### **4.3 Cournot and Stackelberg Games**

## **Chapter 5**

# **Optimisation Techniques**

### **5.1 Convex Optimisation**

### **5.2 Hyperplane Projection**

## **Part IV**

# **Implementation**



## **Chapter 6**

# **Design**

## **Chapter 7**

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