

# Thesis Progress Form

## CHARLES DARWIN UNIVERSITY

### College of Engineering, IT, and Environment

**Name:** Shane Reynolds

**Unit:** ENG720

**Title:** Automatic generation control of a two area power system using deep reinforcement learning

**Supervisors:** Charles Yeo & Stefaniya Klaric

**Time & Date:** 11.00am Thursday 26 Feb

## 1 Progress since last meeting

- Updates and submission of literature review
- Creation of static reference list and email to Charles
- Week 4 Research workshop completion
- Online Plagiarism test completed to 100%
- Developed preliminary models for single area power system using P, and PI control. Implemented using MATLAB — models successfully created and results verified against existing classical control papers for LFC
- Developed preliminary models for two area power system using P, and PI control. Implemented using MATLAB — models successfully created and results verified against existing classical control papers for LFC



## 2 Discussion Points

- Provided Charles with update on current progress
- Charles to provide feedback on research proposal. Key items of feedback include:
  - Shane to ensure documents are not too long (write concisely)
  - Ensure that MS Project is used to create Gantt charts — additional detail like number of days would be useful
  - Shane to ensure that real world data is obtained from a utility for training DRL model (Charles emphasised importance of this point)
  - Shane to ensure that proper consideration is given to alternative control methods for the LFC/AGC control problem — research proposal only considered classical approaches
  - Shane has yet to contact Mark Howard from TGEN (or other contact from PWC)

## 3 Plan until the next meeting

- Develop MATLAB control model mentioned above in a Python environment — try to replicate the simulation results (if this can be achieved then it will be easier to work with Open AI DRL software architectures)
- Continue to refine literature review
- Make contact with Mark Howard from TGEN (and contact from PWC) to secure load profile data for DRL model training

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**Supervisor**

March 27, 2020