

EE3123 Introduction to Electric Power System

Mini-Project

Semester A

In this project, you will learn how the electric power system works and the basic structure of the power grid. By investigating different power sources, distributions, or faults in power system, the knowledge of electric power system will be further consolidated.

1 Objectives

In this project, you will

- a) Learn the load balancing problem in power system, and the peak demand management in the power system to process the power surplus.
- b) Familiar with different faults in the power system and how blackouts (power outages) happen.
- c) Understand the basic concept of the power grid and its network.

2 Tasks

This project has two tasks, you may pick up one of them to do the investigation.

- a) Investigation of Pumped Storage Hydropower
- OR
- b) Investigation of Blackouts (power outages)

3 Useful Tips

- a) Read relevant information from books, magazines, websites, etc.
- b) Describe how hydropower works for the power grid or how blackouts happen.
- c) Discuss one or two detailed practical cases.
- d) Summarize and compare the rated system parameters of different pumped storage hydropower plants.
- e) Discuss the relevant advantages and disadvantages of hydropower.
- f) Describe how we can improve the robustness of the power system to avoid blackouts.
- g) Plagiarism review will be applied to each report.
- h) There is no template available, you are free to organize in any pattern, but a cluttered arrangement will defect your marks.
- i) Any other things you are concerning.

4 Submission Requirements

- a) Each student is required to submit a PDF file (Word not preferred) via CANVAS under Assignments before the deadline.
- b) The project report should not exceed 8 pages, including figures, tables and references, but should be informative.
- c) Please backup your file regularly since the submitted file may be corrupted or damaged (very rare). If that happens, you will be informed of resubmission.