



JAMES COOK UNIVERSITY

School of Engineering,

Electrical and Computer Engineering

EE3700 Assignment 2009

Smart metering Communication System

Introduction

This assignment is worth 20% of the total of the course. The assignment is to be submitted by 10am on Monday the 11th of May 2009, by submitting a paper copy in the submission slot marked 3rd Yr on the landing of the first floor of the Electrical Engineering Building (DD014). In addition the matching word (or other text) document is to be submitted electronically through Safe-assign on LearnJCU. The assignment is specially designed to develop Generic Skills of Information gathering, evaluating this information, using it to formulate a solution to a problem and communication this to non-engineering people. In addition this assignment provides practice in the Generic Skill of report writing for engineering management.

Task

The following is a hypothetical scenario. Imagine that you are employed as the technical manager for communication infrastructure by an ERGON. The Government is considering the introduction of smart metering, in order to reduce the peak load and thus reduce greenhouse gasses. The ERGON board is keen on this since it will delay capital investment and thus allow electricity costs to be kept low. In order to make smart meters work properly, communications between the ERGON control centre and the smart meters is required. One method for this is putting the signals on the existing power lines as a carrier (PLC). Other techniques are using customers phone lines or their ADSL. The Government has asked the electricity industry to comment and as a result the ERGON board has asked you to write a background report for them, so that they can provide the appropriate reply to the minister.

The report should include:

- 1 An executive summary of less than one page to provide the members of the board with enough information to decide how to implement the communication system for the smart metering.
- 2 Recommendations on what sort of communication system to implement. The executive summary and recommendations should be on the same, first page of the report.
- 3 A discussion of the technical aspects and benefits for both ERGON and the customer from the introduction of smart meters and the relevant communication system for them. Your discussion should concentrate on the communication system, as the government is already convinced of the benefits of smart metering.
- 4 A discussion on the economic aspects and risk assessment of this proposal.

- 5 A discussion of the relevant standards, commercial equipment available and rollout implications.

Since most of the board members do not have a electronic communication knowledge, the report should be written such the board members can understand the principles, costs and political/public implications involved.

However the report should contain sufficient technical details that each board member can answer questions from newspaper reporters, by simply referring to the report.

Any sources used must be referenced in the Bibliography section of the report, using the IEEE standard notation.

Plagiarism is the act of using another's words, works or ideas from any source as one's own. Plagiarism has no place in a University. Any diagrams or text produced by others **must** be acknowledged and referenced appropriately. Failure to do so will seriously affect the marks. The electronic submission through Safe-assign in LearnJCU will be automatically checked for plagiarism. If Plagiarism is detected, the University processes in dealing with the alleged case of plagiarism must be followed. The Paper copy is required so that comments can be written in the submission. The paper submission should include the marksheet included in this document as a separate page attached to the front of the report.

Layout

The 10 page-limit, includes graphs and figures and the required title page. An appendix can be added if desired, to include essential material direct from relevant standards, manufacturer's data sheets or other relevant material. No more than 8 pages of Appendices may be included. A 12-point font with a single line-spacing is to be used for the body of the report. The left margin is to be 30mm and all the other margins are to be 25 mm.

Marking Guide (total marks 20)

Inadequate Referencing	-15 marks
Executive summary	3 marks
Recommendations	3 marks
Report layout, grammar and spelling	4 marks
Quality and relevance of information presented	10 marks

C. J. Kikkert

1 April 2009

EE3700 Mark Sheet for Assignment 2009

Student Name: _____

Student Number: _____

Marks Awarded

	Max	Mark	Comments
Executive summary	3		
Recommendations	3		
Report layout, grammar and spelling	4		
Quality and relevance of information presented	10		
Penalty Identify			
Total	20		