



A specialist energy consultancy

# F-Factor Impact Analysis

## DCP 313 Working Group

DCUSA Ltd

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COMMERCIAL IN CONFIDENCE

**DCUSA**

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## Document Control

Revision	Status	Prepared by	Checked by	Approved by	Date
R0	FIRST ISSUE	Andy Oliver	Yun Tiam Tan	Yun Tiam Tan	08/06/2018

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# 1 Introduction

Please find below TNEI's proposal to undertake an impact analysis on changing the F-factor assigned to embedded generators during the EDCM (EHV Distribution Charging Methodologies) charging calculations. The analysis would consider the likely impact on other customers connected to a local network if the F-factor assigned to a local embedded generator were to increase from zero to a non-zero value. This proposal is based on email correspondence received from Andrew Enzor.

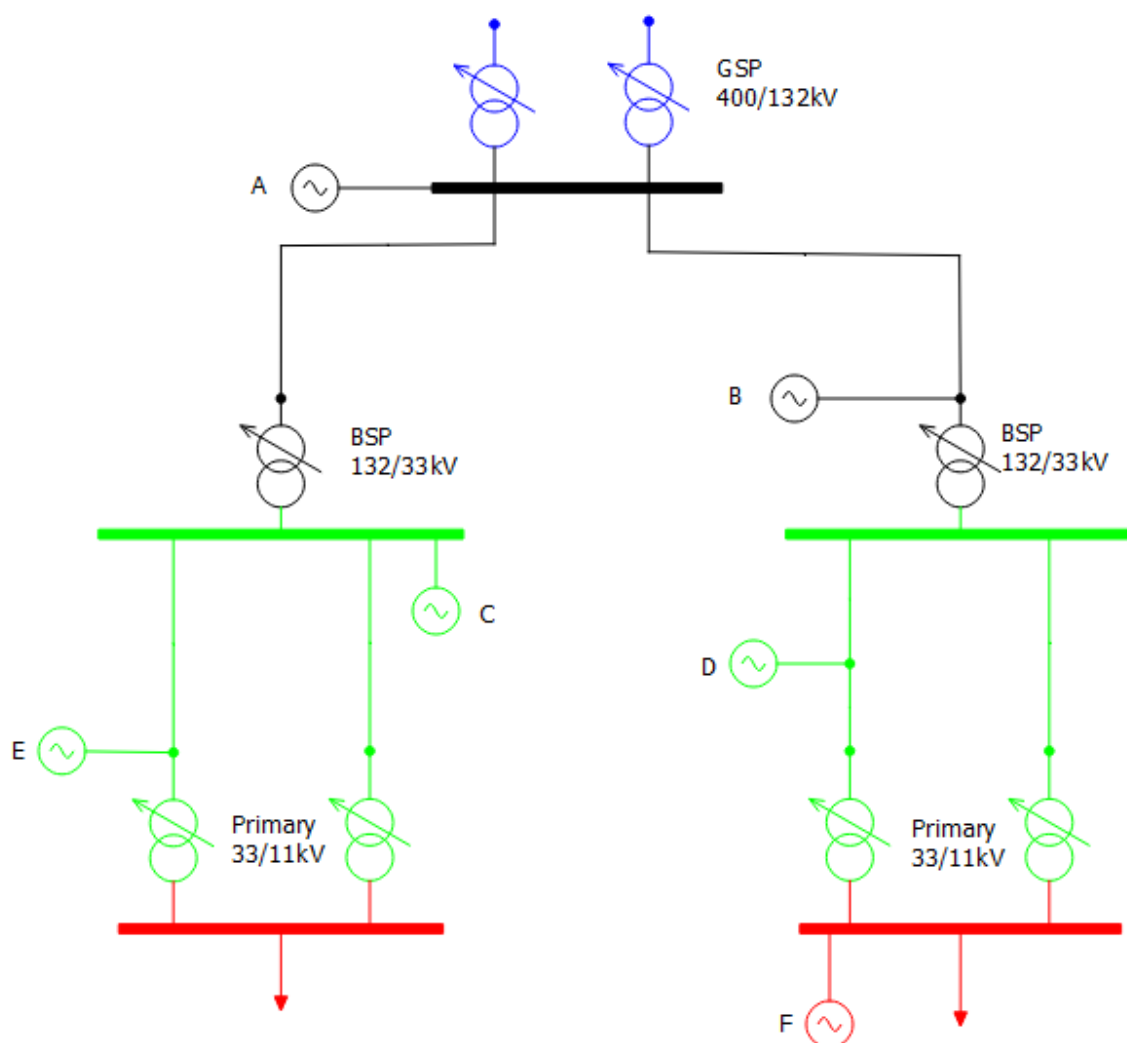
The Power Systems Group of TNEI Services Ltd (TNEI) is very well qualified to undertake this work, having previous experience of:

- Developing tools to perform the power flow analysis and calculate the 'Workstream B' inputs for LRIC (Long Run Incremental Cost) and FCP (Forward Cost Pricing) EDCM methodologies.
- Developing tools to perform the power flow analysis and calculate the Network Use Factor (NUF) figures.
- Using the above tools to run power flow analysis and calculate 'Workstream B' inputs and NUF factors for a range of Distribution Network Owners (DNOs).

## 2 Methodology

Due to the nature of the EDCM calculations, TNEI propose that it would be more appropriate to undertake a qualitative evaluation, of the impact a change in generator F-factor may have, rather than undertake quantitative simulations. The impact of generation on the EDCM calculation results will depend on the location in the network at which the generator is connected. A potential range of generator locations to be considered is illustrated in Figure 2-1. This range is not definitive and the set of locations to be analysed will be finalised through consideration of schedules 17 and 18 of version 10.2 of the DCUSA document.

**Figure 2-1 Potential generation connection locations to be considered**



It is proposed to carry out the following tasks to complete this analysis:

- By reference to the DCUSA schedules 17 and 18 determine a range of generator connection locations to analyse. Each location selected would be expected to have a differing impact on customer charges.
- Two hypothetical GSP networks will be drawn, one of which is demand dominant and one of which is generation dominant.

- For each selected generator location, TNEI will provide a qualitative assessment of the generators impact on customer charges in each of the hypothetical GSPs (demand dominant and generation dominant). Each assessment will consider the generators impact on:
  - Charges calculated using the LRIC method.
  - Charges calculated using the FCP method.
  - NUF

## 3 Deliverables

A single, self-contained report will be produced that will detail the input data and study methodology. Any supporting calculations will be included. Commentary on the results will be provided together with recommendations and supporting justification.

TNEI will accept one set of consolidated comments on the report, received within 3 weeks of report issue. On receipt of consolidated comments TNEI will issue a revised report if necessary. Consideration of further comments and requests for report amendments may incur additional charge. Please note that changes to data provided to TNEI after commencement of the study may incur additional cost.

All reports will be provided in electronic PDF format unless otherwise requested.

### 3.1 Exclusions

The following items have been excluded from the scope of work:

- Meeting costs have not been included in the proposal costs. We would be happy to attend any meetings as required by the client. These will be charged at the daily rate detailed in section 4.2 with reasonable expenses charged at cost.



## 4 Project Team, Timescale and Costs

### 4.1 Project Team

The study work will be undertaken by experienced power system consultants in TNEI's Manchester office. All work will be reviewed and approved before being issued to the client. Curriculum vitae of relevant consultants are available if required.

### 4.2 Timescale and Costs

Table 4.1 details the anticipated cost for each task. Please note that these costs are based on the consideration that all of the tasks are taken together. Cost for undertaking individual studies in isolation can be provided on request.

**Table 4.1 Costs**

Tasks	Timescales	Costs
Review of Methodology Statement	1	875
Qualitative Assessment - LRIC	4	3,500
Qualitative Assessment - FCP	4	3,500
Qualitative Assessment – NUF	4	3,500
Reporting	2	1,750

The cost breakdown for each study has been derived from the daily rate shown in Table 4.2. All costs are in Sterling and are exclusive of VAT. These prices remain valid for 30 days from the proposal date. Payment terms are 30 days from the date of the invoice. Invoices will be raised on submission of the draft report.

The daily rates for additional work such as meetings are detailed in Table 4.2.

**Table 4.2 Daily Rates**

Grade	Daily Rate (£)
Principal Consultant	875
Senior Consultant	775
Consultant	675

Notes:

- All costs are in Sterling and are exclusive of VAT.
- No travel expenses are anticipated, but if required they will be charged in addition at cost.
- These prices remain valid for 60 days from the proposal date.
- Payment terms are 30 days.
- It is proposed that invoices are raised on delivery of the draft report.

### 4.3 Correspondence Details

The correspondence details for this proposal and the project are as follows:

**Table 4.3 Correspondence Details**

	Principal Consultant	Operations Director
Name	Yun Tiam Tan	Nilanga Jayawarna
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## 5 TNEI – Who We Are

TNEI is an independent specialist energy consultancy providing technical, strategic, environmental and consenting advice to organisations operating within the conventional and renewable energy sectors.

We have a range of skills tailored specifically to answer the issues associated with increased distributed renewable generation and the integration of low carbon technology. Our consultants have industry leading expertise in grid code compliance studies, noise assessment and modelling of innovative, smart grid technologies. These skills are complemented by a number of other technical services; from GIS and consenting, to civil engineering and energy market analysis, allowing us to confidently guide clients through projects from concept to delivery.

TNEI also owns and develops the power systems analysis software, IPSA 2, which contains an extensive range of fully integrated modules enabling all essential studies to be undertaken and can be used to provide bespoke modelling solutions.

TNEI operates from three offices in the UK; Manchester, Newcastle and Glasgow, as well as Cape Town in South Africa. Our clients range from large utility companies, large and small project developers, industrial organisations and manufacturers, regulators, public sector bodies and community groups.

We have been operating in the energy industry since 1974 when IPSA software was first created at the University of Manchester Institute of Science and Technology (UMIST), where The Northern Energy Initiative (TNEI) began pioneering research into renewable energy in 1999. As a result of collaboration between these two entities, TNEI Services Ltd and IPSA Power were merged in 2004 and we have been delivering high quality consultancy services to our clients around the world ever since.

Our team of experts can provide you with efficient, timely and practical support for your project, throughout the entire lifecycle.

## 6 Terms and Conditions

Our Standard Terms and Conditions are attached and need to be signed and returned to us before we are able to start any of the work set out in this proposal.