

Clarification Note on Dynamic versus Static Response

DS3 System Services Implementation Project

13 May 2016



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2 Introduction

2.1 Dynamic versus Static Response in the Interim Arrangements

In the draft Interim DS3 System Services Framework Agreements, the following definitions apply for the provision of Dynamic and Static Response from a given Providing Unit:

“Dynamic Response” means a response provided by the Providing Unit by increases in MW Output or MW Reduction in a continuously controlled manner proportional to the Power System Frequency;

“Static Response” means a response provided by the Providing Unit in discrete step increases in MW Output or discrete steps in MW Reduction;

The classification of the type of response which a Providing Unit delivers feeds into the Reserve Type Scalar element of the Product Scalars for POR, SOR, TOR1 (and FFR).

The Interim Arrangements for DS3 System Services (which will operate from October 1st 2016 for a period of one year) are separate to the Enduring Arrangements for DS3 System Services (due to operate from October 1st 2017 onwards). The recently closed Consultation on DS3 System Services Scalar Design consulted on the scalar arrangements for the Enduring Arrangements.

Within the consultation paper it was noted (pg.16) that:

“This scalar has been designed for implementation as part of the enduring arrangements. We believe that a simplified approach will likely need to be progressed for the interim arrangements. This would involve the use of a scaling factor linked to the frequency trigger capability. However, a simplified approach to differentiate between static and dynamic response will be proposed. This will be set out in the forthcoming Interim Arrangements Contract Design consultation.”

While static and dynamic response are defined in the Interim Arrangements Contract Design consultation, some questions have arisen from service providers regarding whether emulated dynamic response will be considered as dynamic response for the

Interim Arrangements, and if so what the characteristics of that emulated response are required to be.

This clarification note provides a number of examples of a Providing Unit's response and their categorisation as dynamic or static response as appropriate for the DS3 System Services Interim Arrangements.

2.2 Examples of Dynamic Response Provision

Figure 1 below depicts a fully dynamic response from a Providing Unit, where changes in MW Output are provided in a continuously controlled manner proportional to the Power System Frequency.

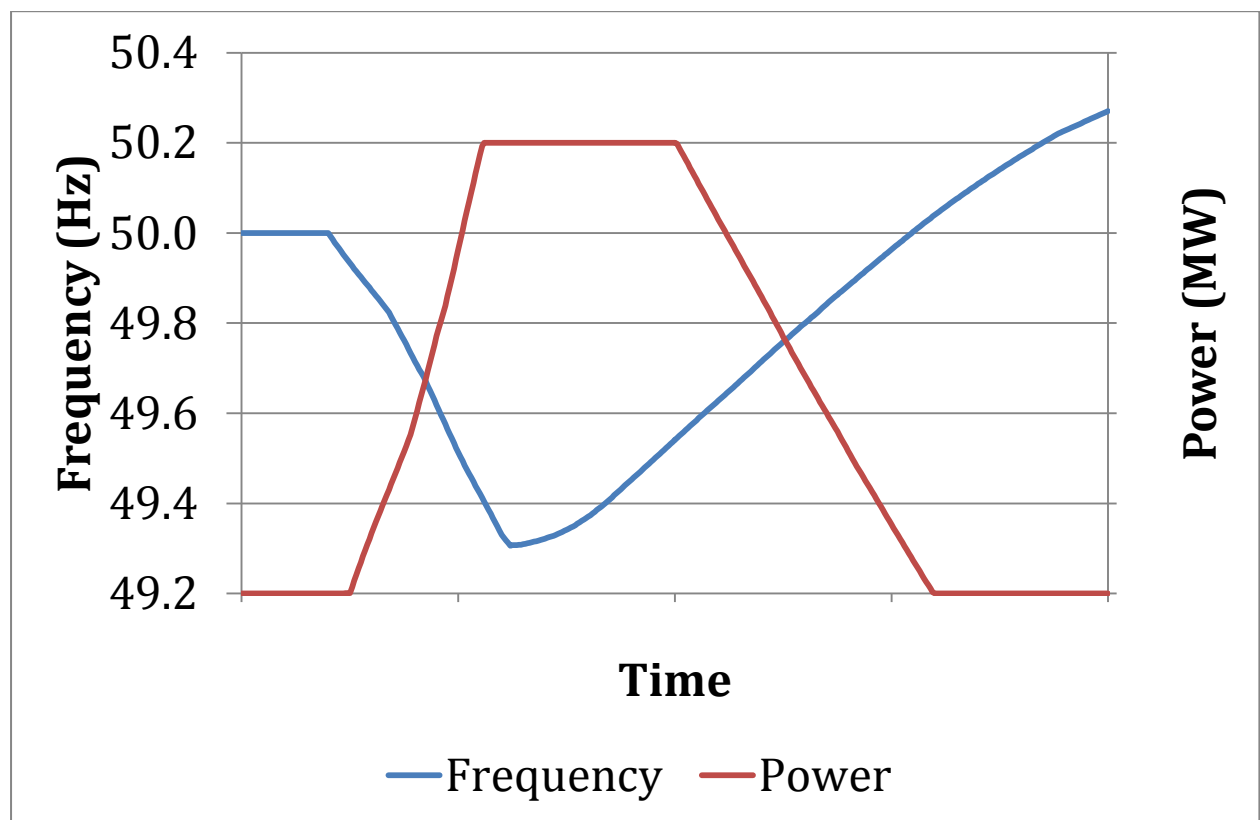


Figure 1: Fully Dynamic Response

Figure 2 below depicts an emulated dynamic response from a Providing Unit where changes in MW Output are provided in ten discrete step changes and the response is provided in a continuously controlled manner proportional to the Power System Frequency.

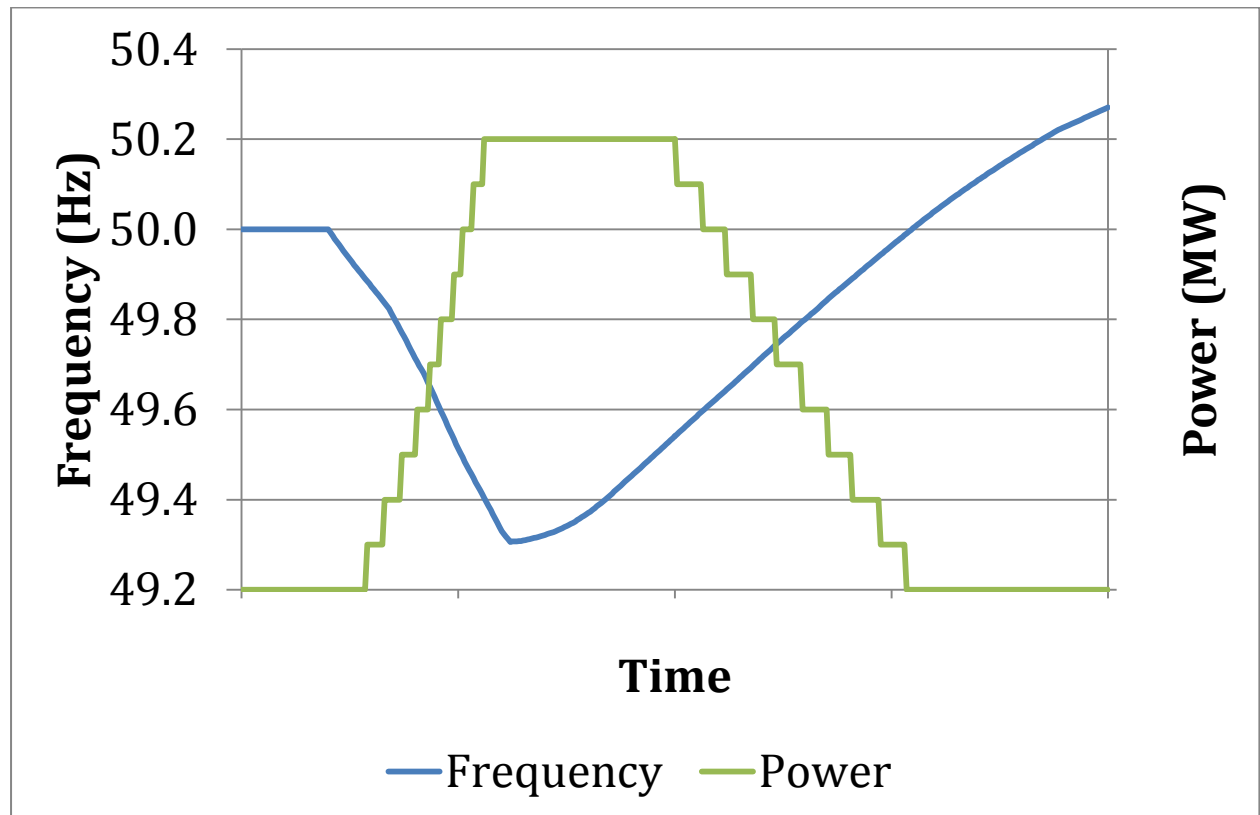


Figure 2: Emulated Dynamic Response (10 steps continuously tracking frequency)

For the Interim Arrangements, to be classified as providing Dynamic Response, a Providing Unit will need to provide response either continuously (as in Figure 1) or with a minimum of 10 discrete steps (as in Figure 2). In both cases, the response provided must be in a continuously controlled manner proportional to the Power System Frequency.

2.3 Examples of Static Response Provision

Figure 3 below depicts a Static Response from a Providing Unit where changes in MW Output are provided in ten discrete step changes. As the response does not track the Power System Frequency, it is classified as Static.

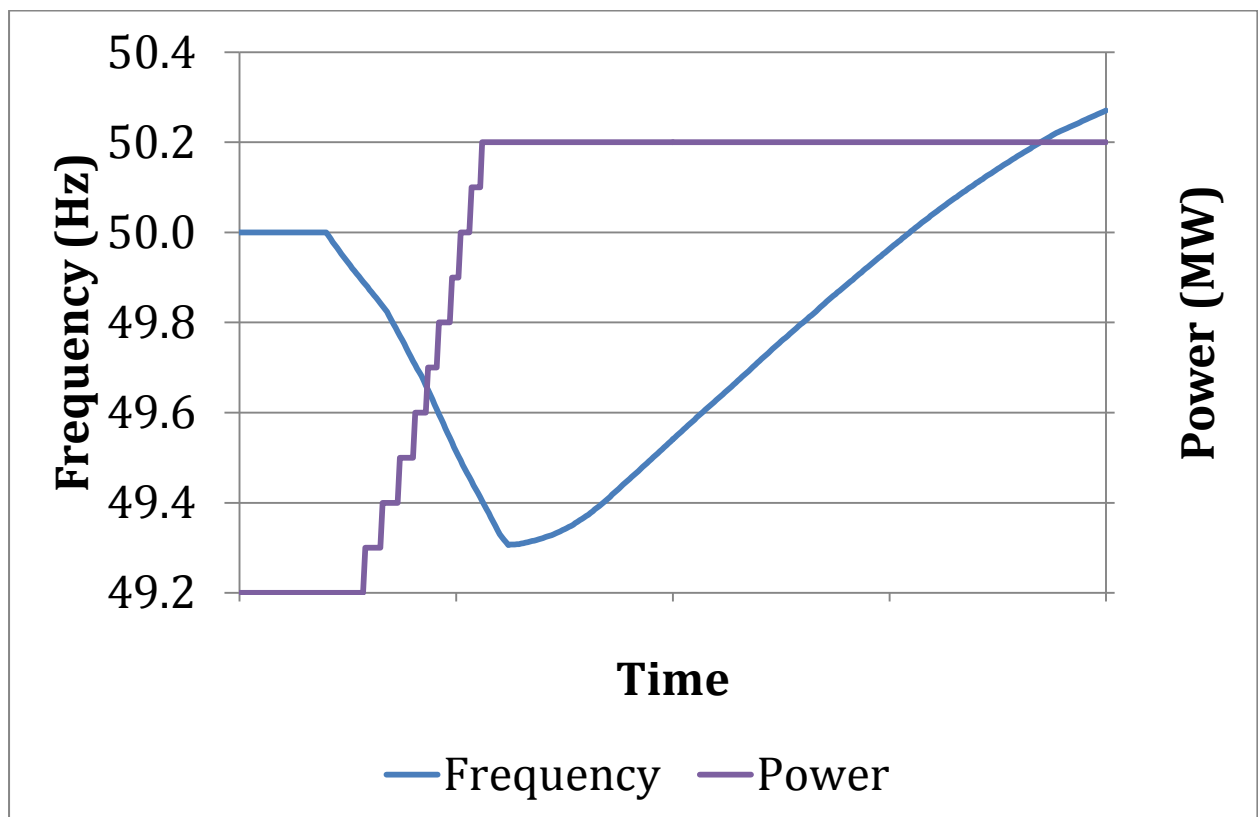


Figure 3: Static Response (10 steps – response does not continuously track frequency)

Figure 4 below depicts a Static Response from a Providing Unit where changes in MW Output are provided in two discrete step changes. In addition to consisting of only two steps, the response also does not track the Power System Frequency and is classified as Static.

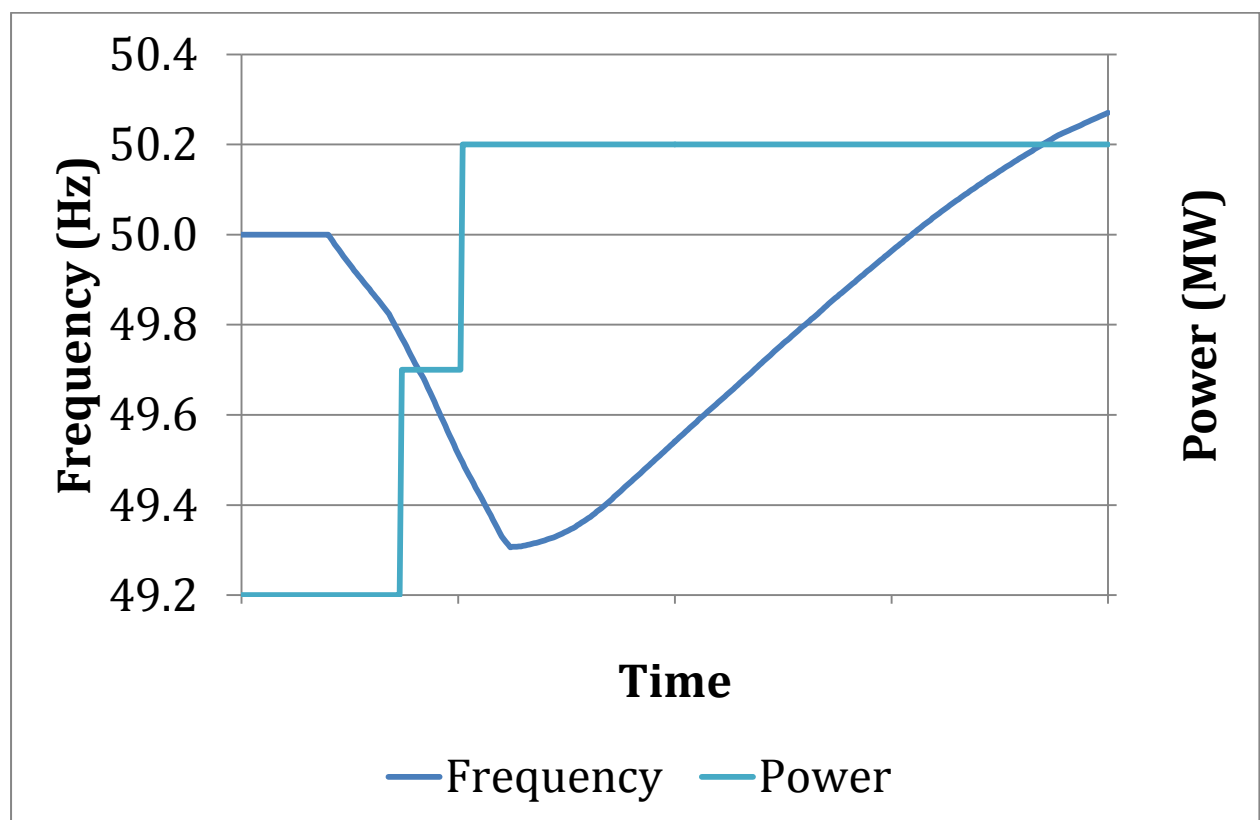


Figure 4: Static Response (2 steps – response does not continuously track frequency)

Figure 5 below depicts a Static Response from a Providing Unit where changes in MW Output are provided in two discrete step changes. Here the response tracks the Power System Frequency. However, as the response consists of only two steps, it is classified as Static.

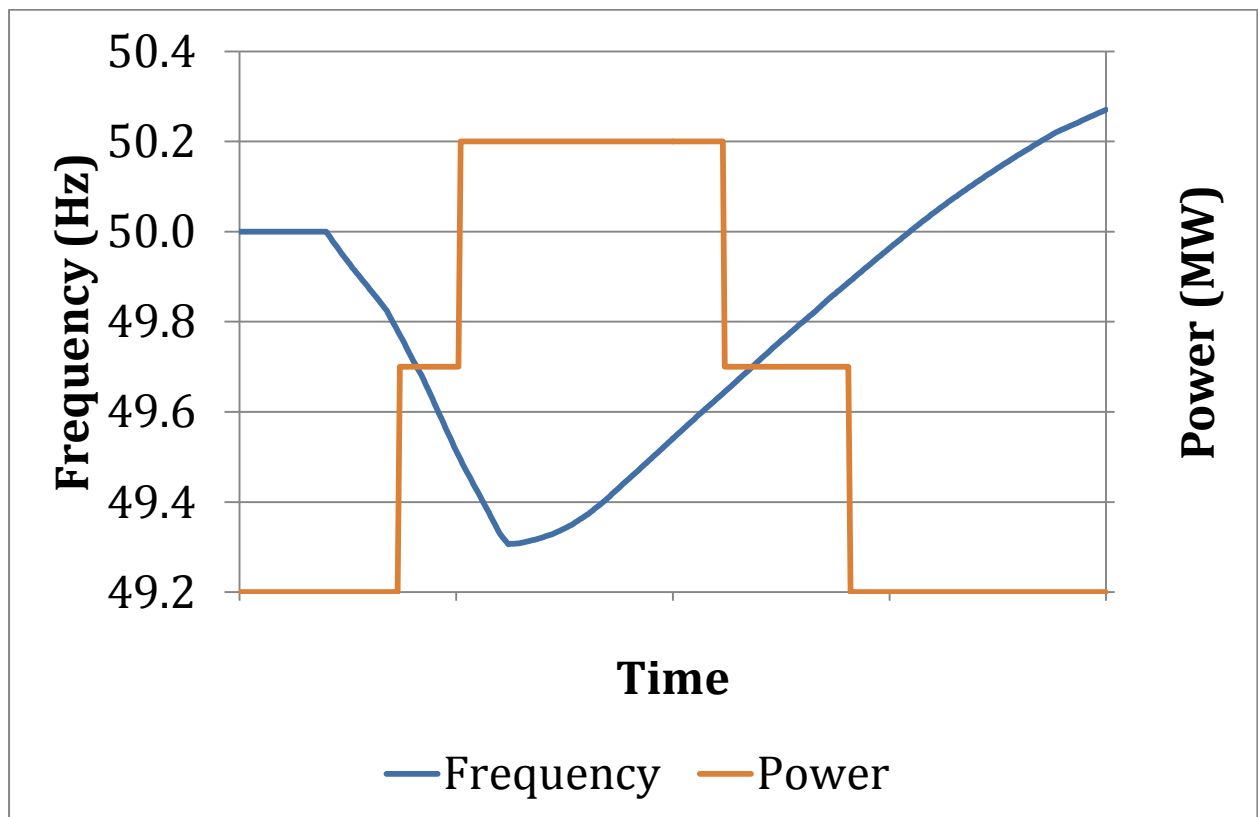


Figure 5: Static Response (2 steps – response continuously tracks frequency)

3 Summary

In summary, for the DS3 System Services Interim Arrangements, to be classified as providing Dynamic Response, a Providing Unit will need to provide response either continuously (as in Figure 1) or with a minimum of 10 discrete steps (as in Figure 2) and in both cases the response must be provided in a continuously controlled manner proportional to the Power System Frequency. Other responses will be considered Static Response.