

CMP 213 Factsheet

Background to CMP213

- 1.1 CMP213 is the CUSC Modification proposal following on from Project TransmiT, the Authority's review of electricity transmission charging and associated connection arrangements¹.
- 1.2 The Modification proposal focuses on changes to Transmission Network Use of System (TNUoS) charging methodology, in three areas:
 - i) Better reflects the costs imposed by different types of generators on the electricity transmission network (**sharing**);
 - ii) Takes account of the development of High Voltage Direct Current (**HVDC**) circuits that will run parallel to the AC transmission network; and
 - iii) Takes account of potential **island connections** comprised of sub-sea cable technology, such as those currently being considered in Scotland.
- 1.3 The Modification proposal has been through the CUSC open governance process. As part of this a Workgroup of 16 members drawn from across the industry met 29 times between July 2012 and March 2013 to define and assess the Modification and a number of Workgroup Alternative Modification Proposals (WACMs).

Sharing

- 1.4 The Modification proposal has been raised on the basis that, as well as ensuring the electricity transmission network is robust for periods of peak electrical demand, the network is increasingly planned based on a cost-benefit approach² reflecting the year round operation of the system, and that implicit within this, some network sharing takes place between generators.
- 1.5 The CMP213 Original proposal aims to reflect this through splitting the TNUoS tariff into two elements; (i) Peak Security and (ii) Year Round. The Peak Security element reflects the baseline assumption that the network is planned for Peak Security conditions, and this element would still be charged on power station capacity (MW), as in the existing charging methodology. Intermittent generators (e.g. wind, solar and wave) are not assumed to contribute to Peak Security build, and therefore are not exposed to this element of the TNUoS tariff as described in Figure 1.
- 1.6 The newly created Year Round element of the TNUoS tariff has been developed to reflect that the network is increasingly planned on a cost-benefit basis. The Proposer of CMP213 (National Grid) believes that analysis undertaken as part of the Modification process demonstrates a link between power station load factor and incremental constraint costs on the transmission system. Therefore an individual generator's Annual Load Factor (ALF) can be used as a simple proxy for reflecting its impact on transmission network investment linked to cost-benefit analysis. To this end, the CMP213 Original proposal multiplies the Year Round element of a generator's tariff by its ALF. This is shown in the Figure 1 overleaf.

¹ <http://www.ofgem.gov.uk/Networks/Trans/PT/Documents1/Final%20direction%2025%20May%202012.pdf>

² This is when network investments are made on the basis that they are a more cost-effective option than paying to constrain generation – linked to SQSS modification GSR009.

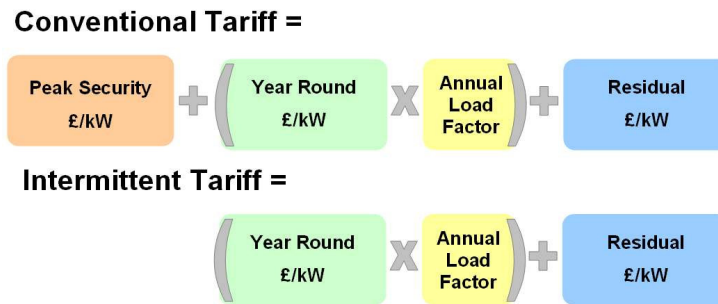


Figure 1: TNUoS tariffs under the Original Proposal

- 1.7 The Workgroup have discussed different ways of calculating the ALF. As well as the Original method (based on historic load factor), an alternative has been developed for calculating the ALF which gives Users the choice whether to submit their own forecast of the ALF or accept the Original method for deriving ALF.
- 1.8 It has been recognised that the relationship between load factor and incremental constraint costs deteriorates in areas with little diversity between generation plant types. This is particularly in areas with large amounts of low carbon generation, where the price to constrain off generation can be expensive relative to conventional generation. The Workgroup has therefore developed three alternative approaches to limit sharing on the system when diversity behind a transmission boundary reduces. Two of these approaches still include a proportion of the Year Round charge to be based on ALF, whilst the third considers diversity within a part of the system, and only on the Year Round background (i.e. it does not consider Peak Security requirements). All three approaches are now incorporated within the CMP213 WACMs.
- 1.9 The Original also considers sharing in the context of local sharing on radial circuits, which are generally built consistent with a generators full output. A Counter Correlation Factor (CCF) has been introduced as part of the Original proposal, should sharing on radial circuits be planned for in the future, and is also included in all CMP213 WACMs.

HVDC

- 1.10 A number of High Voltage Direct Current (HVDC) transmission circuits are being developed that will run parallel to the AC transmission network. The CMP213 Modification proposal seeks to address two areas to reflect this new transmission technology into the charging methodology:
- The treatment of power flows in the TNUoS charging model, given that power flows on HVDC circuits which, unlike AC circuits, are controllable
 - The calculation of an appropriate expansion factor (i.e. relative unit cost) for these circuits.
- 1.11 For the first element, power flows on HVDC circuits are treated as if they were AC circuits in the CMP213 Original Proposal and all WACMs.
- 1.12 Regarding the calculation of the expansion factor, Workgroup discussion has mainly focused around whether a proportion of the costs of the converter stations required for HVDC links should be removed from the base calculation and socialised, rather than being charged locationally. This is based on the argument that certain elements of converter stations provide benefits to the wider system as a whole and removal of some costs would ensure equivalent treatment with similar costs onshore. The CMP213 Original proposal includes all costs (of the cable and the converter stations) in the HVDC link specific expansion factor and the

Workgroup has developed a number of alternatives where elements of these converter station costs have been removed.

Island Connections

- 1.13 A number of prospective island³ connections comprised of sub-sea cable technology are currently being considered for development. The Modification proposal seeks to develop the charging methodology to cater for such connections.
- 1.14 Workgroup discussions for Island Connections have focused on the Main Interconnected Transmission System (MITS) charging definition and its consequential implications on local and wider TNUoS charges, and the expansion factor calculation for island links.
- 1.15 Regarding the treatment of sub-sea connections to the Islands, the Original proposal would calculate specific expansion factors for each sub-sea circuit. These will be predominantly HVDC technology, and the Workgroup has developed a set of alternatives in line with those raised under the HVDC area of the Modification (see above).

WACMs and voting

- 1.16 At the end of the Workgroup process, all potential alternative components relating to sharing, HVDC and islands were combined into 41 potential Workgroup Alternative CUSC Modification (WACM) proposals. The Workgroup then voted on (1) whether each alternative, including the Original proposal, better met the Applicable CUSC Objectives than the CUSC baseline; (2) whether each alternative better met the Applicable CUSC Objectives than the Original proposal, and (3) which alternative I, including the Original and the CUSC baseline, best met the Applicable CUSC Objectives.
- 1.17 The majority of the Workgroup believed that the Original proposal better facilitated the Applicable CUSC Objectives than the CUSC baseline. The voting process also reduced the number of WACMs to be formally taken forward to 26.
- 1.18 The Workgroup were split as to which option was the best. Out of the fifteen who voted, one member abstained, 5 preferred the CUSC baseline, 5 preferred WACM 7⁴ and the remaining 4 preferred separate WACMs.

Implementation and Transition

- 1.19 A number of potential implementation and transition options have been discussed. The Workgroup was split as to the best implementation date. Some Workgroup members argue that a 1st April 2014 date is most appropriate to introduce changes as soon as possible whilst others felt that a 1st April 2015 was preferable to give generators more notice of changes for making commercial decisions. The Workgroup was also split on whether a transitional approach was appropriate.
- 1.20 The Workgroup report contains the range of arguments for and against different implementation dates, along with any consequential transition requirements with each option. The final decision on implementation date rests with Ofgem, subject to their assessment of the arguments.

³ The Authority Direction referred, in particular, to the Scottish island groups of the Western Isles, Orkney and Shetland.

⁴ WACM7 consists of sharing under the original proposal with converter station costs removed from HVDC expansion factors equivalent with AC elements, including Quadrature boosters and static compensation