

AUGHINISH ALUMINA LIMITED

(Registered in Ireland No.59982)

Utility Regulator/ Commission for Regulation of Utilities

- Gary McCullough: Gary.McCullough@uregni.gov.uk
- Gina Kelly GKelly@cru.ie

23rd June 2021

Re: Non Confidential Response to SEM-21-026 Dispatch, Redispatch & Compensation

Dear Gina / Gary,

Introduction

Aughinish welcomes the opportunity to provide comments on Regulatory Authorities' (RA's) "minded to" position in relation to Dispatch, Redispatch and Compensation pursuant to Regulation EU 2019/943.

As we stated in our response to the initial consultation SEM-20-028 dated 22nd June 2020, it is Aughinish understanding that under Article 13(6 c) of the Regulations, our High Efficiency Combined Heat and Power Plant (HE-CHP) (a.k.a. CHP) with priority dispatch will not be subject to downward dispatch below our minimum Generation (i.e. "self generation that is not fed into the transmission system") other than for significant network security reasons for which there is no other solution and for the RA's to note that financial compensation in such an instance is not a viable alternative to loss of steam for our manufacturing process.

Subject to the above and RA's confirmation of our understanding of how the Regulation will be implemented, Aughinish can support the RA's proposals with one amendment that if the CHP is subject to redispatch below our Minimum Stable Generation (MSG) then:

- i. Sufficient advance notice is given to Aughinish control room operator as soon as possible in order for the alumina plant to take necessary operational safety and environmental actions to mitigate loss of steam supply and
- ii. Financial compensation must take into account full consideration of the cost of lost production directly caused by loss of backup heat due to CHP being dispatched off by TSO.

Background to Aughinish and HE-CHP

Aughinish Alumina Limited (Aughinish) has since 1983 operated a large alumina refinery based in West Limerick, which is one of the most energy-efficient in the world and produces 30% of EU alumina requirements for the production of aluminium and other products.

After operating for 20 years on Heavy Fuel oil, Aughinish adopted early action in 2003 to move to cleaner fuel and improve overall energy efficiency. Aughinish invested over US \$130M in a 160MW High-Efficiency Combined Heat and Power (HE-CHP) plant to meet the power and continuous heat needs of the refinery, thus becoming an exporter of power and no longer only a consumer. Since commercial operation in 2006, the CHP plant has played a major role in Ireland reducing emissions, accounting for an average saving of approximately 330,000 tonnes of CO₂ per annum. Subsequent investment in gas boilers have increased the significant reduction in CO₂ emissions and improved overall alumina plant energy efficiency.

Aughinish is one of the least carbon-intensive fossil fuel generators in Ireland, with an electrical carbon intensity of ~234 g CO₂ /kWh. The plant operates an ISO accredited Energy Management system and is certified to ISO50001 and ISO90001.

The HE CHP plant has an 80 % overall energy efficiency and provides power and steam to the alumina process. The low carbon alumina is exported to EU and further afield supplying to green hydro-powered aluminium smelters.

Relevance of Regulation (EU) 2019/943, Art 12 and Art 13 to HE-CHP

The Electricity Regulation sets out revised rules and principles of internal EU electricity market to ensure it is well functioning, competitive and undistorted. To support decarbonisation it retains priority dispatch for existing PD generators and applies strict rules to limit redispatch of renewables and HE-CHP and provides clear guidelines on financial compensation that applies.

The relevant key clauses under Articles 12 and 13 of the Electricity Regulation are:

Article 12 – Dispatch:

- 12.1 Dispatch of generation / demand shall be non discriminatory /transparent and market based.
- 12.6- ...Power Generation facilities that use renewable energy sources or High Efficiency CHP (with contracts concluded before July 2019) which were subject to Priority Dispatch shall continue to benefit from Priority Dispatch...

Article -13 -Redispatch

- Art 13.1 ...Redispatch of generation / demand response shall be based on objective, transparent, and non-discriminatory criteria.
- Art 13.2 The resources that are redispatchedshall be financially compensated.
- Art 13.3 Non-market-based redispatching of generators shall only be used if (no market based alternative available / or all available market based resources have been used or no effective competition for provision of services.
- Art 13.4 TSO shall report regularly on ...measures taken to reduce downward dispatch of renewable and HE-CHP ...
- Art 13.5 – TSO shall
 - guarantee the capability of transmission system to transmit electricity produced from renewables and HE-CHP with minimum possible redispatch...
 - Take appropriate grid and market measures to minimise downward redispatch of electricity from renewables and HE-CHP...
- Art 13.6 – For non-market based redispatch limited by –
 - Electricity from HE-CHP only turned down if no other alternative or for severe risk to network security.
 - Self generated electricity from HE-CHP which is not fed into transmission system shall NOT be subject to downward dispatch... subject to system security.

Compensation

- Art 13.7 Non market based redispatch shall be subject to financial compensation which shall be at least equal to :
 - Additional operating costs caused by re-dispatch (e.g. backup heat provision for HE-CHP).
 - Example of implications of loss of backup heat: For a manufacturing facility relying on stable reliable heat from HE-CHP, loss of heat will lead directly to significant manufacturing disruption and production losses.

It is very clear from wording of Articles 12 and 13 that operation of HE-CHP is strongly supported in the Regulation and that it must be applied by TSO's in any actions around dispatch and redispatch.

Aughinish Consultation responses to specific RA proposals

Section 2.1 DEFINITION OF DISPATCH & REDISPATCH Page 13 & 15

Regulatory Authority Proposal:

- In the SEM, dispatch relates to the scheduling and dispatch of units to meet the energy requirements of the market, noting the complexity of identifying dispatch and redispatch separately in the central dispatch system with an integrated scheduling process, which is carried out through the identification of energy and non-energy actions as part of the flagging and tagging process.
- Energy balancing in the SEM aligns with the definition under the Electricity Balancing Guideline as *'energy used by TSOs to perform balancing and provided by a balancing service provider'*. Dispatch and energy balancing are aligned to the existing concept of 'energy actions' in the SEM.
- A complexity to this interpretation is that priority dispatch wind and solar units cannot be dispatched for energy balancing purposes. This issue is considered further in Section 2.1 and updates may be required to SEM-13-011 in terms of the distinction between constraints, curtailment and energy balancing. This issue is also considered in the SEM Committee's Proposed Decision Paper on the treatment of new renewable units in the SEM (SEM-21-027), which has been published along with this paper.

Regulatory Authority Proposal:

- Redispatch in the SEM relates to deviations from the market schedule for generation for both local network and broader system reasons, including TSO-instructed reduction in generation due to localised network issues (constraints) and reduction in non-synchronous generation due to other system-wide reasons such as levels of System Non-Synchronous Penetration (curtailment).
- The Regulatory Authorities acknowledge that future market developments may include new forms of dispatch and redispatch at the distribution level.

1. Aughinish fully supports RA's proposed definitions in relation to Dispatch and Redispatch.

Page 18/19 RA proposal on DISPATCH AND REDISPATCH ACTIONS TAKEN ON PD UNITS

Regulatory Authority Proposals:

- As part of this Consultation, the Regulatory Authorities welcome feedback on whether decremental actions taken on priority dispatch units can be considered either dispatch and redispatch (energy and non-energy actions) or as forms of redispatch only (non-energy actions).
- As set out in the SEM Committee's Building Blocks Decision Paper (SEM-15-064), priority dispatch generation should not be able to set the imbalance price. In a situation where the sum of available priority dispatch renewable generation exceeds the demand to be served in a particular 5-minute period and all available non-priority dispatch units have been dispatched down to their Lower Operation Limit, priority dispatch units are dispatched down according to the priority dispatch hierarchy, one option is to reflect this by implementing a Modification to replace the decremental bids of such units with zero for Imbalance Pricing.
- Alternatively, it is proposed that a new flag for priority dispatch units could be introduced to the flagging and tagging process to ensure that in such instances, priority dispatch units are not price setting and are settled on the basis of their complex bids.

- The interaction between this discussion and related Consultations on the Electricity Balancing Guideline and Articles 3, 6 and 10 of the Electricity Regulation has been discussed in this section and a decision on the Modification referenced here will not be taken until this suite of Consultation and decision-making processes are complete.

1. In relation to RA's question on Dec actions on PD units, Aughinish believes that Decremental actions taken on PD units can be considered Dispatch and Redispatch (i.e. both energy and non-energy actions) as PD HE-CHP units may be dispatched down for a portion of output offered on market based DEC bids while also being subject to Hierarchy of Priority Dispatch on an "absolute" Priority basis where any movements away from market schedule are based on non-energy actions.
2. Aughinish support RA's view that PD should not be able to set the imbalance price. However Aughinish consider that Negative Dec Bids are essential to reflect the real consequential cost of loss of backup heat and reflect the fair compensation due in event of Dispatch-off of HE-CHP.
3. Aughinish can agree with the introduction of a new flag for PD as long as settlement reflects the Article 13 of the regulation.

Section 2.2 Definition of NON MARKET BASED RE-DISPATCH

The consultation document provides the following definitions and RA's proposed minded-to opinions.

Curtailment- The definition used by RA's relates solely to Dispatch Down of Non-Synchronous generation units for system wide reasons (such as SNSP level, systems stability, voltage control)

- The RA's propose that Curtailment in SEM is a form of non-market based redispatch.

Constraint -Relates to dispatch down or redispatch of units due to localised system reasons (where only a few generators can solve the problem.

- The RA's propose that :-
 - Constraints in the SEM applied to non-PD units is a form of market based redispatch.
 - Constraints in SEM as applied to PD units is a form of non-market based redispatch.

Page 28/29 RA Proposals on CURTAILMENT & CONSTRAINT

Regulatory Authority Proposals:

The Regulatory Authorities are of the view that;

- Curtailment in the SEM is currently a form of non-market based redispatch, as it is applied to all non-synchronous units (regardless of priority dispatch status) and is not based on any merit order or the bids and offers of units.
- Constraints as applied to all non-priority dispatch units are a form of market based redispatch.
- Constraints as applied to all priority dispatch units are a form of non-market based redispatch.
- Constraints as applied to priority dispatch units and non-priority dispatch units should be remunerated based on the different mechanisms for compensation already in place in the SEM that are based on decremental prices submitted by non-priority dispatch units and the deemed decremental prices applied for priority dispatch units. The Regulatory Authorities do not propose any change to the current market mechanisms of remuneration for constraints.

1. Aughinish agrees with RA's proposal that Curtailment (i.e. non-synchronous units only) is a form of non-market based redispatch. The TSO actions are taken in order to comply with specific systemwide technical and security limits. The pro-rata application of curtailment and the lack of economic indicators point to non-market based actions by TSO.
2. We agree with the RA's that the application of Constraint for Non-Priority Dispatch are a form of market based redispatch as they are based on submitted unit commercial data and bids / offers.
3. Aughinish recognise that Constraint applied to PD units are a form of non- market based redispatch. However we believe that Electricity Regulation is very clear in 13(7) that the associated remuneration must be at least equal to the higher of ...additional operating costs caused by redispatch, or backup heat provision in case of downward redispatch of HE-CHP.

4. Aughinish can support RA's proposal that constraints to HE-CHP be compensated via existing mechanism in SEM but ONLY when applied to dispatched-down between full output and Minimum Stable Generation (MSG).

However for dispatch below MSG Aughinish disagree with proposal that constraints applied to HE-CHP be compensated via existing mechanism in SEM. The Electricity Regulations are very clear in relation to compensation for PD HE-CHP and the implementation of Article 13.7(a) requires a new SEM mechanism to address additional operating costs of backup heat provision. In relation to Re-Dispatch, Article 13 as EU law, clearly states that:

- TSO should avoid redispatch down of HE-CHP, and if so
 - not below minimum self-generated electricity (not fed into transmission system) and then
 - must provide compensation for financial losses associated with loss of heat supply to the associated manufacturing process.

○ **Hierarchy of Priority Dispatch in SEM**

In our response, Aughinish wish to highlight the importance of the physical consequence in real-time of any SEM Committee decision related to the Electricity Regulation 2019/943. Our two high efficiency CHP units (Sealrock 3 and Sealrock 4) operate in an integrated manner to deliver low carbon power and continuous useful heat to the alumina plant. Due to the configuration of our Trading Site, ours is the only CHP site on the island which is subject to dispatch by the Transmission System Operator (TSO). If CHP is dispatched off by the TSO then continuous heat is lost and alumina plant must shut down.

The continuous secure supply of heat is critical to the viable operation of the alumina plant and any financial compensation should only be considered as a last resort if the TSO had no other option but to turn the CHP below its Min Gen to solve a grid security concern. Consideration of financial compensation is appropriate but physical delivery of heat is the greatest obstacle to CHP in Ireland. This consultation will inform the TSO's Balancing Market Principle Statement (BMPS) and will be the rulebook for real-time decisions made in the Control Centre. For our alumina plant, we need at a minimum to secure a continuous heat supply from our CHP when operating at Minimum Stable Generation (MSG or Min Gen). This is self-generated power most of which we self-consume on site. We can position the units in the market (always exposed to market prices) and submit Physical Notifications but the TSO, due to the metering configuration, can dispatch down our self-generated power. The TSO does not have this control with other CHP units who operate 'behind the meter'.

Aughinish asks for a clear simple direction that high efficient CHP with priority dispatch should not be subject to downward dispatch below Min Gen (i.e. turned off), other than for exceptional network security reasons for which there is no other solution.

We would expect the TSO to publish a revised Hierarchy for Priority Dispatch / Redispatch as per table below.

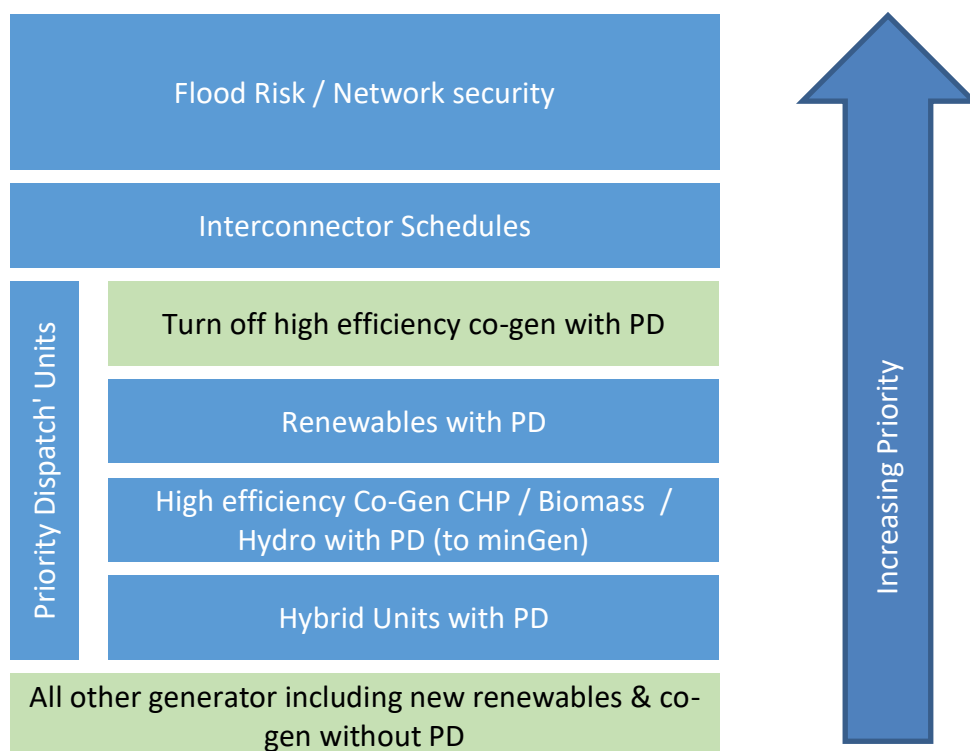


Table: revised Hierarchy for Priority Dispatch / Redispatch

Section 2.3 Financial Compensation under Art 13(7)

The consultation document outlines the appropriate level of compensation in the event of non-market based re-dispatch, including balance of risk between consumers and generators, and the utility of curtailed electricity.

However we believe that RA’s must equally take into account the utility of the constrained **back-up heat** and the associated **disruption** of manufacturing process of HE-CHP when interrupted by TSO decremental actions. The overall thrust of Art 13 is that wherever possible Renewables and HE-CHP should not be re-dispatched down. If the TSO choose to turn off HE-CHP which retains Priority Dispatch, then in this context such actions by TSO must comply with Art 13(7) in terms of level of compensation i.e. must reflect the bids submitted by HE-CHP generator, and also must take into account the real time necessity (i.e. adequate notice) for the associated manufacturing plant to ramp-up backup heat supply to counter the TSO actions in electricity market.

Self Generated Electricity HE-CHP

Art13(6)c gives the highest priority to self-generated power. Only units retaining priority dispatch under Art12 have a higher priority.

Aughinish has consistently highlighted the discrepancy of the TSO’s dispatch tool being able to schedule a demand response which is not offered to the market. Aughinish typically sells 115MW to the market but the TSO can dispatch 160MW. The difference is the TSO’s ability to dispatch our self-generated power. (i.e. if CHP is dispatched off , then alumina plant 45MW demand is immediately transferred from “self-generated” to “imported from market”.

Currently, Aughinish is the only site in the market where this unusual situation arises. Grandfathering of PD under Article 12 will minimise the risk to our site. To protect future low carbon HE-CHP installations the redrafted PD hierarchy should ensure the Min Gen of autoproducing (or self-generating) HE-CHP (or renewables) is given the highest ranking unless no other solution would resolve a network security issue.

Page 50 / 51 RA Proposals and Questions on Compensation

- There are set targets in place to increase the level of SNSP to 75% by the end of 2021 and the TSOs plan to operate the system at SNSP levels of up to 95% in future in order to accommodate significantly higher levels of renewables. This may entail some enduring level of curtailment and a continued issue of alignment of the market with operational and system security requirements. On this basis, the RAs are also considering whether a limit on compensation under Article 13(7) could be included in future to account for the higher targets of SNSP and levels of non-synchronous generation which can be physically accommodated on the system.
- The RAs are of the view that constraints applied to priority dispatch units and non-priority dispatch units should only be remunerated based on the mechanisms for compensation already in place in the SEM. Units which benefit from priority dispatch should not be overcompensated for the non-market based nature of constraints applied to them, which is driven by the way in which priority dispatch is implemented in the SEM.
- The RAs propose to only compensate firm generators for non-market based redispatch associated with curtailment.

Regulatory Authority Proposals:

- The RAs recognise that the issue of the difference between the ex-ante market schedule and feasible dispatch requires further consideration. The RAs intend to further assess these issues as part of a range of measures being considered to mitigate curtailment in the SEM.
- The RAs propose provide financial compensation for non-market based redispatch associated with curtailment based on a different compensation regime for priority dispatch and non-priority dispatch units. This is based on the value of priority dispatch and to provide a potential incentive for units to voluntarily give up priority dispatch, which may in turn reduce levels of curtailment where units are not run to their availability.
- Under this proposal, all units that are currently eligible for priority dispatch would receive compensation for non-market based redispatch (in relation to curtailment), where firm, up to the level of their additional operating costs caused by redispatching pursuant to Article 13(7) (a).
- All new units, which are no longer eligible for priority dispatch, based on the criteria outlined in SEM-20-072, would be subject to compensation under Article 13(7), where firm and subject to non-market based redispatch (in relation to curtailment) up to the level of the DAM price at the time they are curtailed.
- All units would have the opportunity to avail of compensation up to the level of the DAM price in exchange for surrendering their priority dispatch rights. This is linked to the implementation of market changes to facilitate non-priority dispatch renewables set out in SEM-21-027.

1. In relation to difference between ex ante market schedule and feasible dispatch - Aughinish can understand the TSO difficulty that a large proportion of non-synchronous generation in ex-ante market will not always be delivered due to technical limitations (SNSP limits etc), and we agree with RA's proposal that further assessment is required.
2. Aughinish supports the RA's proposal on Financial Compensation for non-market based curtailment with different arrangements for PD and non PD.

3. Aughinish supports the RA's proposal that existing PD would receive compensation for non-market based redispatch (curtailment) when firm up to level of additional operating costs.
4. Aughinish supports the RA's proposal that all new units not eligible for PD be compensated for curtailment up to level of DAM.
5. In relation to limits for compensation, Aughinish believes that compensation under Art 13 for firm generators which are re-dispatched must cover the full cost associated with TSO Actions in the areas of additional operating costs (fuel, backup heat) and other net revenues forgone due to TSO redispatch request. There does not appear to be provision for limits to compensation under Art 13.7
6. Aughinish cannot support RA proposal that only existing compensation mechanisms be applied for remuneration of constraints to PD & non-PD units. Aughinish strongly believes that all existing PD HE-CHP units should receive compensation for non market based redispatch due to curtailment and constraints up to the level of additional operating costs caused by redispatching in accordance with Art 13.(7)
 - o Article 13 recognises the importance and value of heat from HE-CHP to host. 13.7 clearly states that such compensation shall be at least equal to ...additional cost of backup heat provision.
 - o The (EU) 2019/943 is binding as EU law and clearly states level of compensation to be implemented to recognise benefits of HE-CHP and Primary Energy Saving and associated carbon saving benefits

The existing SEM mechanism will not compensate for the additional operating costs of providing back-up heat and therefore the RA's will need to facilitate a mechanism which addresses this if HE-CHP is redispatched below Minimum Stable Generation (MSG or Min Gen).

Section 2.4 – Application of Proposal from Jan 2020

RA noted that requirement for financial compensation for non-market redispatch under Article 13(7) came into force on 1 Jan 2020.

RA proposed 2 options.

SEM Committee Proposed Decision:

- The SEM Committee has outlined two proposals for an ex-post payment mechanism and welcomes feedback on this from interested stakeholders, including alternative proposals.
- It is expected that under either mechanism, no change would be required to the treatment of Curtailment within the Trading and Settlement Code.

Aughinish comment- Compensation should be paid to eligible units from Jan 2020. We believe that the first option proposed where TSO compiles information on level of curtailment for each market time across the year is the most appropriate approach.

Yours sincerely

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