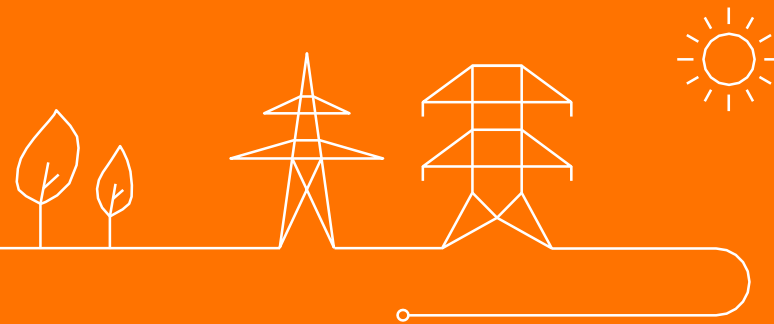


Energy Management Strategies

Stakeholder Workshop 24/02/2022



Agenda

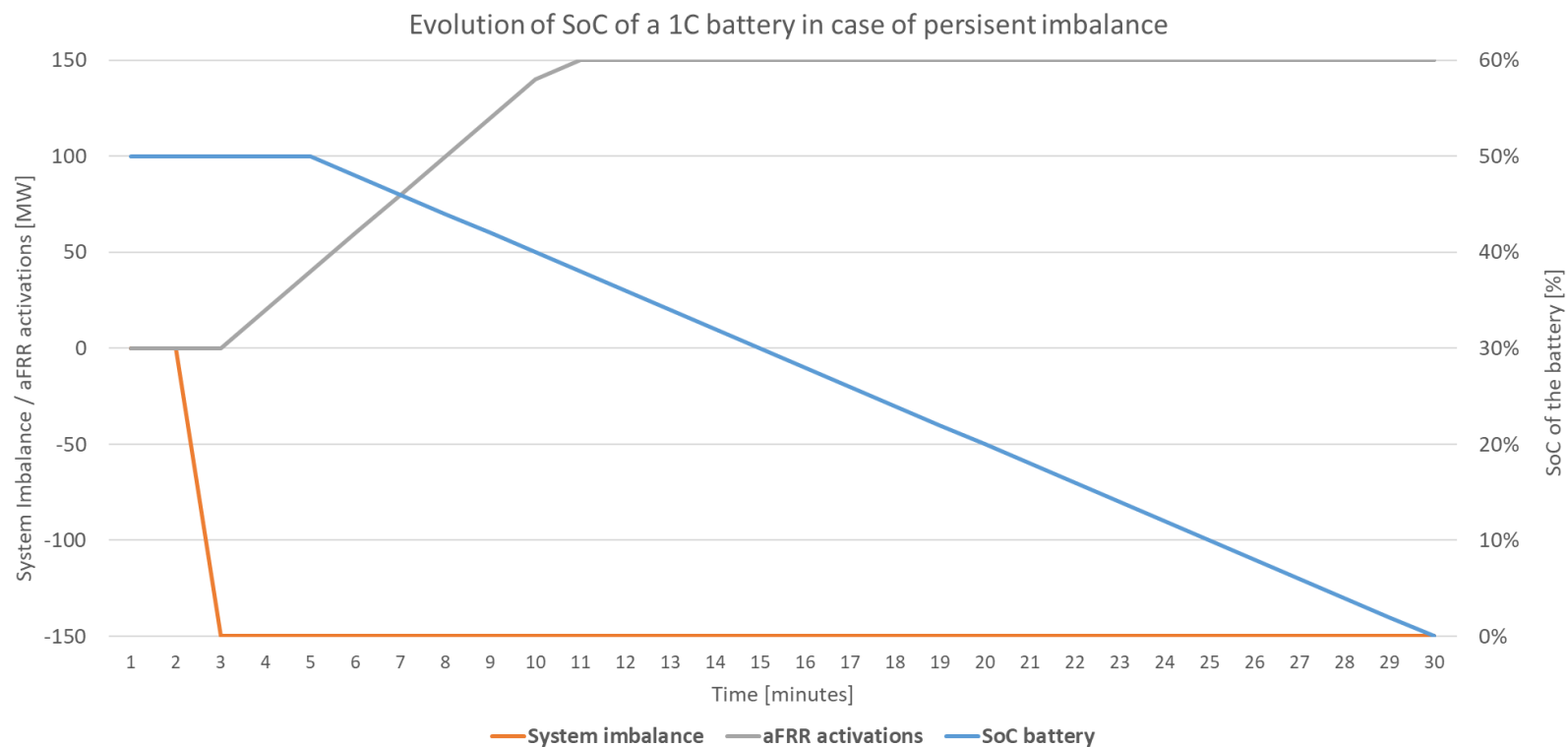
- Introduction
- Prerequisites for using LER in aFRR
- Energy Management Strategies analysed
- Acceptable market practices according to REMIT (presented by CREG)
- How to demonstrate that the service is delivered
- Next steps

Introduction

- Increasing assets with Limited Energy Reservoir (LER) expected in aFRR (capacity) market
 - This provides an opportunity for increase of liquidity and reduction of costs of aFRR activations
 - There is however a risk associated that the aFRR service may not be available continuously when Elia needs it
- **Need to clarify rules** in order to:
- Limit the risk of undelivered volumes
 - Create a transparent functioning of batteries in the market to guarantee a fair competition between market parties
 - Provide clear guidance to BSPs for their business plan

Introduction

Simplified example of depletion risk



- Assumption of a 10MWh battery offering 10MW UP and 10MW DOWN
- Very much simplified example, does not take into account mFRR activations (which would decrease the aFRR requested). However:
 - Even with mFRR activations, the system imbalance could further degrade, requesting continuous aFRR activations
 - With the PICASSO platform, aFRR can be continuously activated for needs in other TSOs

Prerequisites for using LER in aFRR

- Content of the T&C BSP aFRR

| | | |
|----|--|--|
| 46 | Delivery Point with Limited Energy Reservoir | A Delivery Point that contains a Technical Unit which is unable to continuously activate its rated power in the same direction for a period of 4 hours due to the depletion of its energy reservoir, considering that only 50% of the energy reservoir was available at the start of the activation. |
|----|--|--|

II.3.8 Each Delivery Point with Limited Energy Reservoir should be included in an energy management strategy, as described in Annex 2.D. ELIA validates the energy management strategy or provides a justification for rejecting it. The BSP will, at all times, operate the Delivery Point with Limited Energy Reservoir in line with the energy management strategy validated by ELIA.

2.D ENERGY MANAGEMENT STRATEGY

In case the BSP wishes to add a Delivery Point with Limited Energy Reservoir to its Pool, the BSP needs to send an energy management strategy by e-mail to the contractual responsible as mentioned in Annex 17. The energy management strategy aims to prove the ability of a Delivery Point with Limited Energy Reservoir, on its own or together with other Delivery Points of the Pool, to comply with requirements for provision of the aFRR Service as these are stipulated in Art. II.12.

The required information for the energy management strategy is described in the document “aFRR Energy Management Strategy Requirements” which is published on the ELIA website and is available on demand by e-mail to contracting_AS@elia.be.

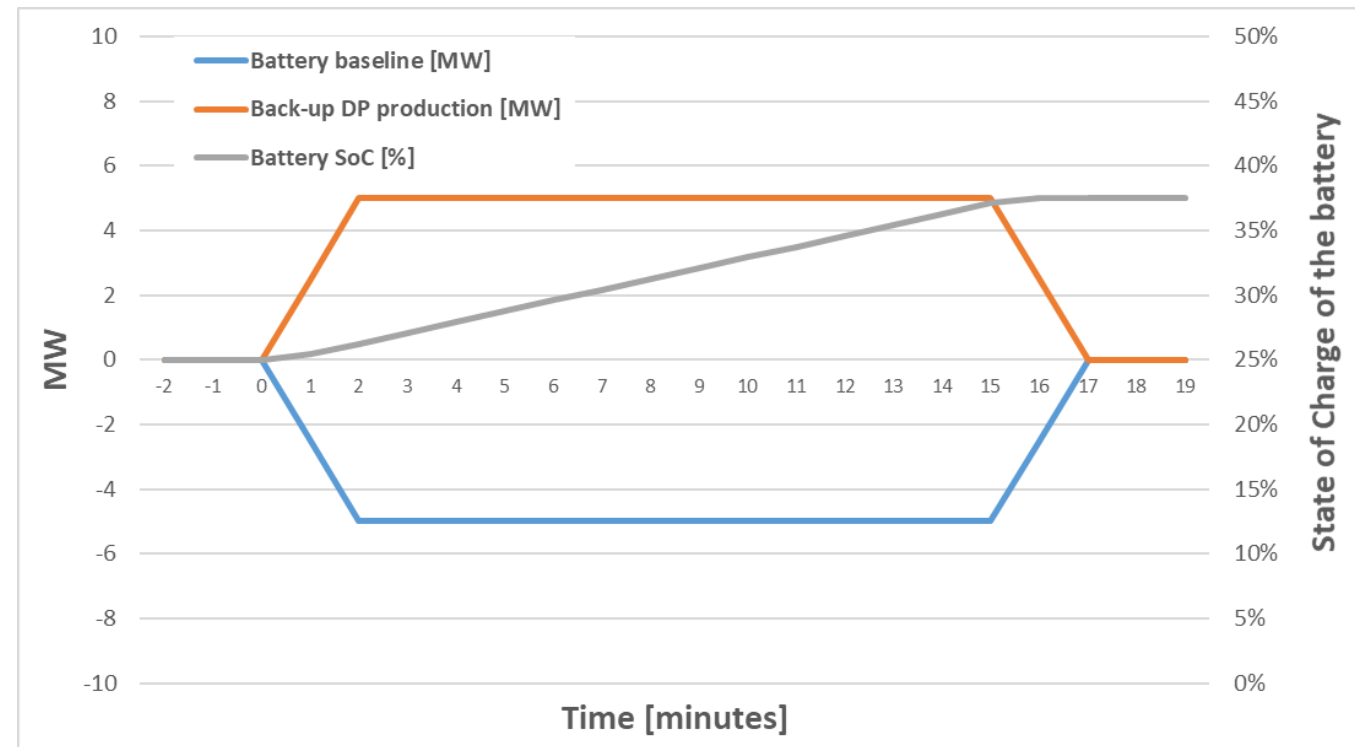
- These provisions will also apply to DPs already participating to the aFRR service

Energy Management Strategies analysed



Back-up DP:

- The market party has a “back-up DP”, which can be used to refill the LER asset when needed, while still delivering the aFRR requested
- Impact on baseline: example
 - A battery doing only aFRR and offering 10MW in both direction has a 25% SoC
 - A back-up DP of 5 MW is activated in the positive direction → in absence of aFRR activation, the battery will absorb 5 MW. As a result, the baseline of the battery is changed from 0MW to -5MW
- The back-up DP can (but doesn't have to) be a DP offered for the aFRR service (f.i. part of the Supporting Providing aFRR Group).
- The back-up DP does not need to have the technical capability to deliver aFRR



Energy Management Strategies analysed



▪ **Transfer of obligation**, according to Art. II.10 and Annex 8 of the T&C BSP aFRR

- This can be used in practice, but can't be accounted for in the EMS submitted by the BSP

Extract T&C Art. II.10

- The Transfer of Obligation can take place as of the award of capacity auction until one hour before beginning of the first quarter-hour for which the Transfer of Obligation applies;

Energy Management Strategies analysed



■ Use of the tolerance band of the activation control

- This would lead to systematic discrepancies in the service delivery, while this is obviously not the objective of the tolerance band



■ Imbalance charging

- Principle: recover the SoC by offtake from (injection in) the grid without compensation (for example from back-up DP)
- In practice, a BSP doing imbalance charging would change the baseline and its BRP would be exposed to the imbalance tariff
- Example:
 - A battery doing only aFRR and offering 10MW in both direction has a 20% SoC
 - To recover an optimal SoC, the battery starts absorbing 5MW from the grid without counterpart, changing its baseline accordingly to -5MW
 - The aFRR requested for the bid including this battery is 5MW. As a result, the aFRR service would be considered as delivered ($DP_{\text{baseline}} = -5\text{MW}$ and $DP_{\text{measured}} = 0\text{MW}$), while the energy will not be produced
- This comes down to not delivering the service. As a result:
 - The energy is not delivered while the capacity has been paid for (non-contracted bids have the possibility not to offer in a given direction if the SoC is at risk)
 - The aFRR demand will increase, leading to the activation of aFRR Energy bids further in the merit-order and hence socializing the costs

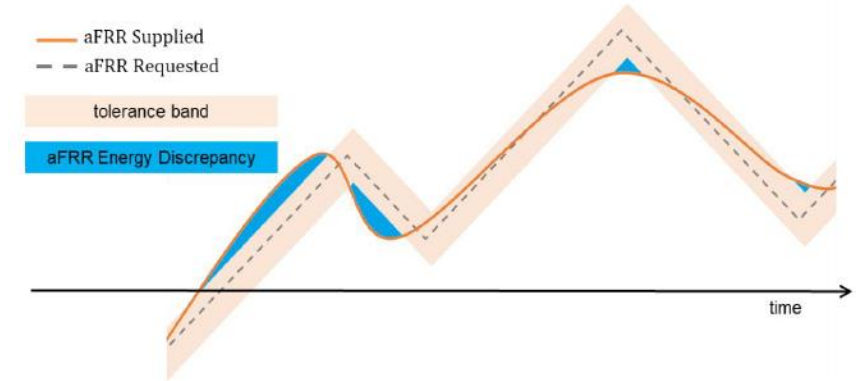



Figure 9 - aFRR Energy Discrepancy

Energy Management Strategies analysed

■ ID market

- Elia acknowledges that having a back-up DP reserved for each LER asset delivering aFRR is suboptimal from a system perspective, and that accessing alternative recharging assets on the intraday market may be economically beneficial
- There is however a risk that the ID trade is not corresponding to a physical increase / decrease of production. Example:
 - The system is short, the SoC is reaching its limit
 - A BRP is long and accepts to be closer to a balanced position
 - ID deal between the BRP of the BSP and the “long BRP”

The ID deal will solve the issue of the SoC of the battery, the aFRR service will be considered as delivered (as the BSP will have modified its baseline), but there will be no additional MWs
- This risk is much higher if the ID deal is occurring close to real-time, as assets which have the technical ability to react fast are expected to be either offered as balancing energy to Elia, either already used for self-balancing
- An additional risk is the limited liquidity on the local ID market

Energy Management Strategies analysed

▪ ID market

➔ Proposal to allow the use of ID market until 1 hour before the start of the QH and to instruct the nomination on the Elia HUB ID until 1 hour before the start of the QH



➔ The use of the ID market after this deadline is not allowed as an Energy Management Strategy



- Limits the risk of “accounting transactions” with no impact on delivered volumes
- Higher liquidity, limiting the risk of unavailability of volumes
- Will require transparency on the ID deals between BSP/BRP and the counterpart BRP in such situations

Energy Management Strategies analysed

■ Asymmetric pricing

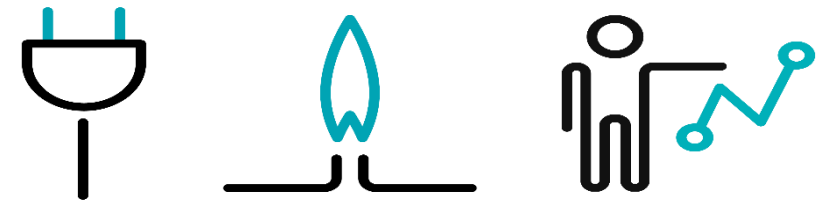
- Principle: adapt bid price based on the SoC, which as a consequence increases / decreases the probability of being activated in a given direction
- Benefits:
 - According to several market parties, this strategy is very efficient in limiting the need to rely on back-up DPs or ID trades
 - It provides an opportunity to reduce the costs, as these assets would be earlier in the merit order in one direction
- Attention point: the aim of the asymmetric pricing can't be that the BSP is positioning the bid at the end of the merit-order in function of the SoC. See CREG's presentation on accepted market practices
- This strategy is not sufficient on its own, as it's not excluded that all bids in the local merit-order are activated

Accepted market practices according to REMIT

CREG – ENERGY MANAGEMENT STRATEGY WORKSHOP

Thomas Kawam – Advisor

24 February 2022



— **CREG** —

Commissie voor de Regulering van de Elektriciteit en het Gas

Table of content

- Definition of the EMS and roles of Elia & the CREG
- REMIT, market manipulations and request for informations
- CREG's expectations on pricing strategies for DPs with LER

Definition of the EMS and roles of Elia & the CREG

Definition

The Energy Management Strategy (EMS) according to the proposed version of the T&C BSP aFRR:

- Annex 2D:
[...] The energy management strategy aims to prove the ability of a Delivery Point with Limited Energy Reservoir, on its own or together with other Delivery Points of the Pool, to comply with requirements for provision of the aFRR Service as these are stipulated in Art. II.12. [...]
- Article II.3.8 :
[...] Elia validates the energy management strategy or provides a justification for rejecting it. The BSP will, at all times, operate the Delivery Point with Limited Energy Reservoir in line with the energy management strategy approved by ELIA.

Responsibilities

According to those articles, the **EMS needs to prove the technical feasibility** of the Delivery Point with Limited Energy Reservoir to comply with the requirements of the aFRR products. Elia is the competent stakeholder to assess and validate the EMS on those technical aspects.

The **EMS will not be used** to prove the compliance of the bidding strategy from a **pricing perspective**. The CREG will receive, for information, the EMS of the market participants but will not assess the compliance of the strategy with regards to the existing regulation on market integrity.

REMIT, market manipulations and request for informations

REMIT

REMIT is the EU regulation 1227/2011 on wholesale energy market integrity and transparency. It defines the forbidden market practices and gives roles and responsibilities to different stakeholders in that context. According to the Belgium electricity law, the CREG is the competent authority to sanction companies for REMIT breaches.

Market manipulations

REMIT Article 2(2) defines the market manipulations as follow:

(a) entering into any transaction or issuing any order to trade in wholesale energy products which:

- (i) gives, or is likely to give, false or misleading signals as to the supply of, demand for, or price of wholesale energy products;*
- (ii) secures or attempts to secure, by a person, or persons acting in collaboration, the price of one or several wholesale energy products at an artificial level, unless the person who entered into the transaction or issued the order to trade establishes that his reasons for doing so are legitimate and that that transaction or order to trade conforms to accepted market practices on the wholesale energy market concerned;*

The [ACER guidance](#), in its Chapter 6, provides more information on the forbidden market practices.

Request for information

- The CREG, as defined by Belgium electricity law article 26 §1bis 1°, has the right to request any information to a market participant to fulfill its missions
- Elia, as person professionally arranging transactions (PPAT), has the obligation to notify the CREG of any reasonable suspicion of a REMIT breach

CREG's expectations on pricing strategies for DPs with LER

CREG's expectations on pricing strategies

- A bid price cannot be built by taking into account the risk of incurring a penalty but can however be based on market opportunities
- A market participant shall always be able to clearly demonstrate and justify its price construction according to the information available at the time of the bid submission

Additional information

- Even if an EMS includes a pricing strategy/pricing elements, even if not needed, the validation of the EMS by Elia cannot be considered as a validation of the pricing strategy
- The CREG will not validate pricing strategies but will closely monitor the market and will send requests for information if necessary

In case of further questions regarding accepted market practices and pricing strategies, the CREG invites market participants to bilaterally send their questions.

How to demonstrate that the service is delivered

- The EMS can use a combination of strategies
- The demonstration can be based on a deterministic analysis
 - Example: dedicated back-up DP which is always available to cover long term activations
- Alternatively, the demonstration can be based on a statistical analysis
 - Example: a back-up DP doesn't cover the full volume or has a LER itself
 - Analysis to be performed on a period of 2 historical years
 - When the historical data used for the demonstration appear not be representative anymore, Elia has the right to request an update of the statistical analysis
- The EMS sent to Elia will be considered as confidential (will only be shared with the CREG)

How to demonstrate that the service is delivered

Minimum content of the EMS to be submitted by the BSP (non exhaustive list)

- The characteristics of the LER asset(s)
- The indented use of the LER asset. If not exclusively dedicated to aFRR
 - A description of the other uses
 - The ratio between the power and the content of the reservoir dedicated to aFRR
- The assumptions used (liquidity on XB ID market is assumed to be present)
- An exhaustive description of the strategies used
 - Example: what level of SoC triggers activation of back-up DP or an ID trade?
- The type of analysis (deterministic or statistic) used for demonstrating that the BSP will be able to deliver the service continuously

How to demonstrate that the service is delivered

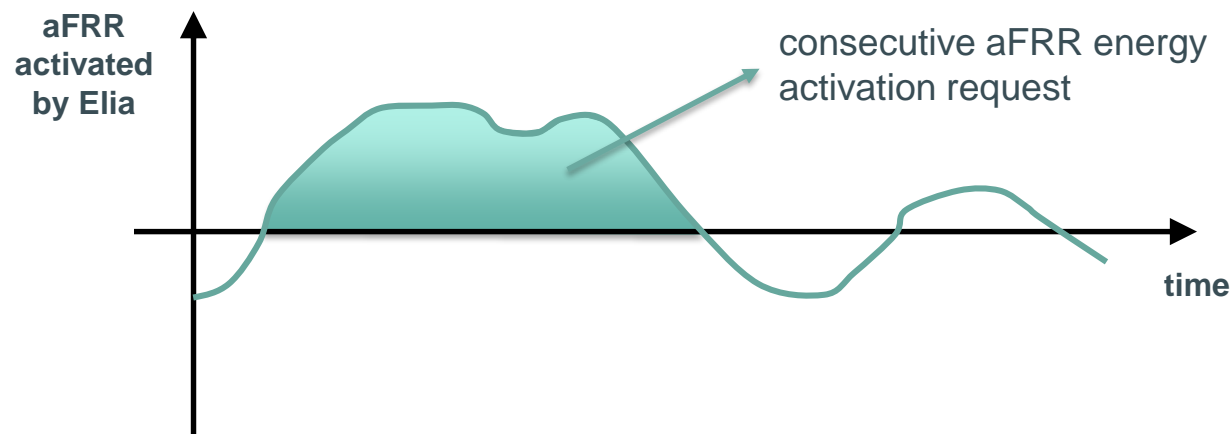
Additional requirements in case of statistical approach

- In case of use of asymmetric pricing, a description of the assumptions used
 - Assumptions on pricing can't be based on relative positions in the MO
 - Important note: approval of the EMS by Elia is not an approval of the BSP's pricing strategy
- Following information will be made available by Elia based on the publications on Elia's website
 - 1' granularity data for the volume of aFRR activated by Elia (R2+ and R2- in file "activated energy volumes per minute")
 - The local merit orders (in file "Increment / Decrement ARC merit orders")
- The BSP shall provide time series for the full studied period with the following data
 - The SoC
 - The volume of aFRR activated by Elia
 - The prices bid for activation in upward and downward direction
 - aFRR requested of the bid containing the LER asset
 - The baseline of the LER asset
 - The volumes activated with a back-up DP and/or the volumes traded on the ID market (justifying baseline modifications)

How to demonstrate that the service is delivered

Additional requirements in case of statistical approach

- The report shall include graphical representations of the evolution of those parameters for the following selection of days
 - The 5 days where the SoC reached the highest value
 - The 5 days where the SoC reached the lowest value
 - The 5 periods with the highest consecutive aFRR energy activation request by Elia in the positive direction
 - The 5 periods with the highest consecutive aFRR energy activation request by Elia in the negative direction



Next steps

- Publication of EMS requirements
 - Parties are invited to provide additional feedback by 10th of March
 - Elia intends to publish the EMS requirements by the end of March (together with the data to be used for statistical analyses)

- When the EMS is approved by Elia:
 - The BSP will, at all times, operate the DP with LER in line with the EMS
 - The BSP could be requested by Elia to demonstrate the correct application of its EMS
 - The BSP may be requested to provide the State of Charge (SoC) in real-time to Elia
 - The BSP needs to be able to succeed an availability test at any time

Next steps

Possible future evolutions

- The penetration of LER assets in the aFRR market is expected to grow, but is currently still quite limited.
- Therefore, while the discussions on the EMS and the establishment and publication of EMS requirements aim to provide as much clarity as possible with the knowledge we have today, further evolutions of the EMS requirements are possible, for example to account for:
 - New strategies that would be discussed with market parties
 - The possible increase of market share of LER assets, decreasing the efficiency of strategies counting on asymmetric pricing
 - The connection to PICASSO, which will potentially impact the length and frequency of activations
 - Experience with LER assets active on several markets
 - Results of monitoring of the behavior that will be done by Elia
- New requirements would apply retroactively and may result in the need for a BSP to re-submit an EMS

Thank you.

