



Closing of open points

ERESS FORUM 2016

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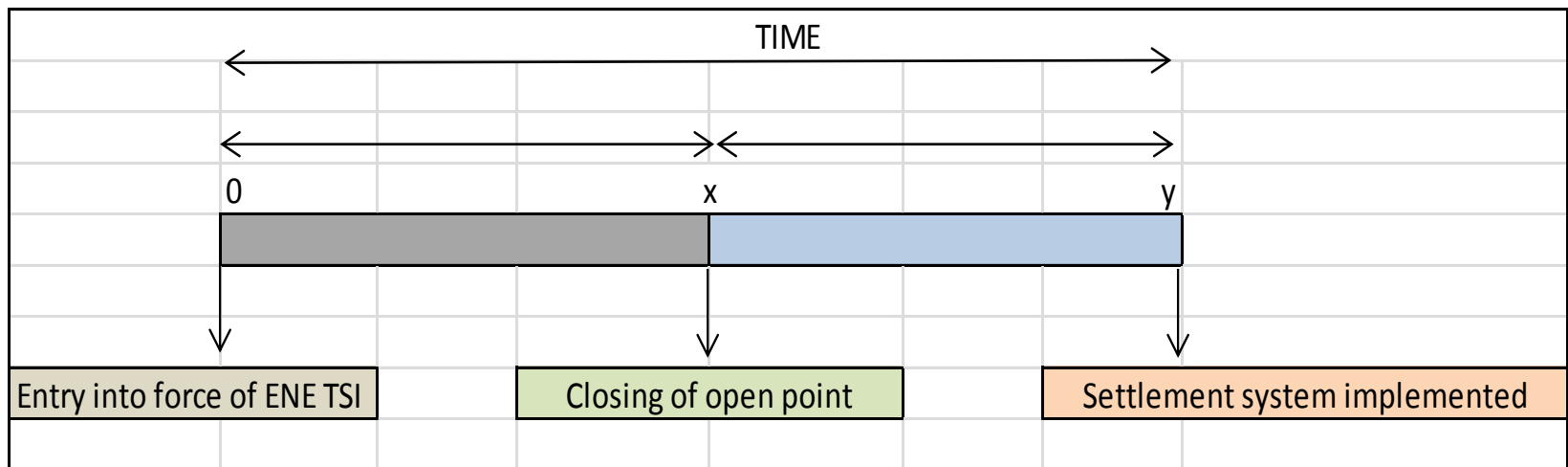
ENE and LOC&PAS open point

- › Closure of the open point on ENE (COMMISSION REGULATION (EU) No [1301/2014](#) – article 9, item 4) and LOC&PAS TSIs: interface protocols between EMS (energy measuring system) and DCS (data collecting system) and transferred data format.
- › **ERA Task Force** to monitor revision of the standard EN 50463 and the process to convert IEC series of standards into EN standards that will support the closure of this open point.



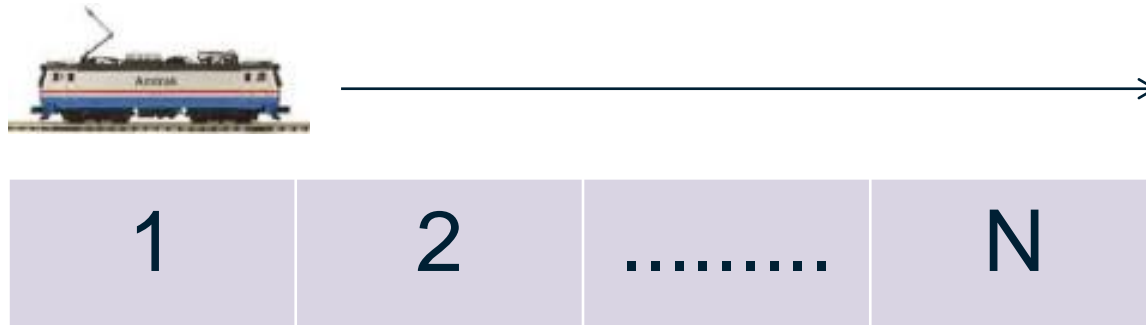
ENE and LOC&PAS open point - Responsibilities

- › **Member States** shall ensure that an settlement system (SS) capable to receive data from a DCS and accept it for billing is implemented.
- › **Time Schedule:**



ENE and LOC&PAS open point – Business Case

- › Train equipped with TSI compliant EMS
- › Train running in N network(s) (1, 2, ...N)
- › Network -> geographical area covered by the same energy supplier



ENE and LOC&PAS open point – Business Case



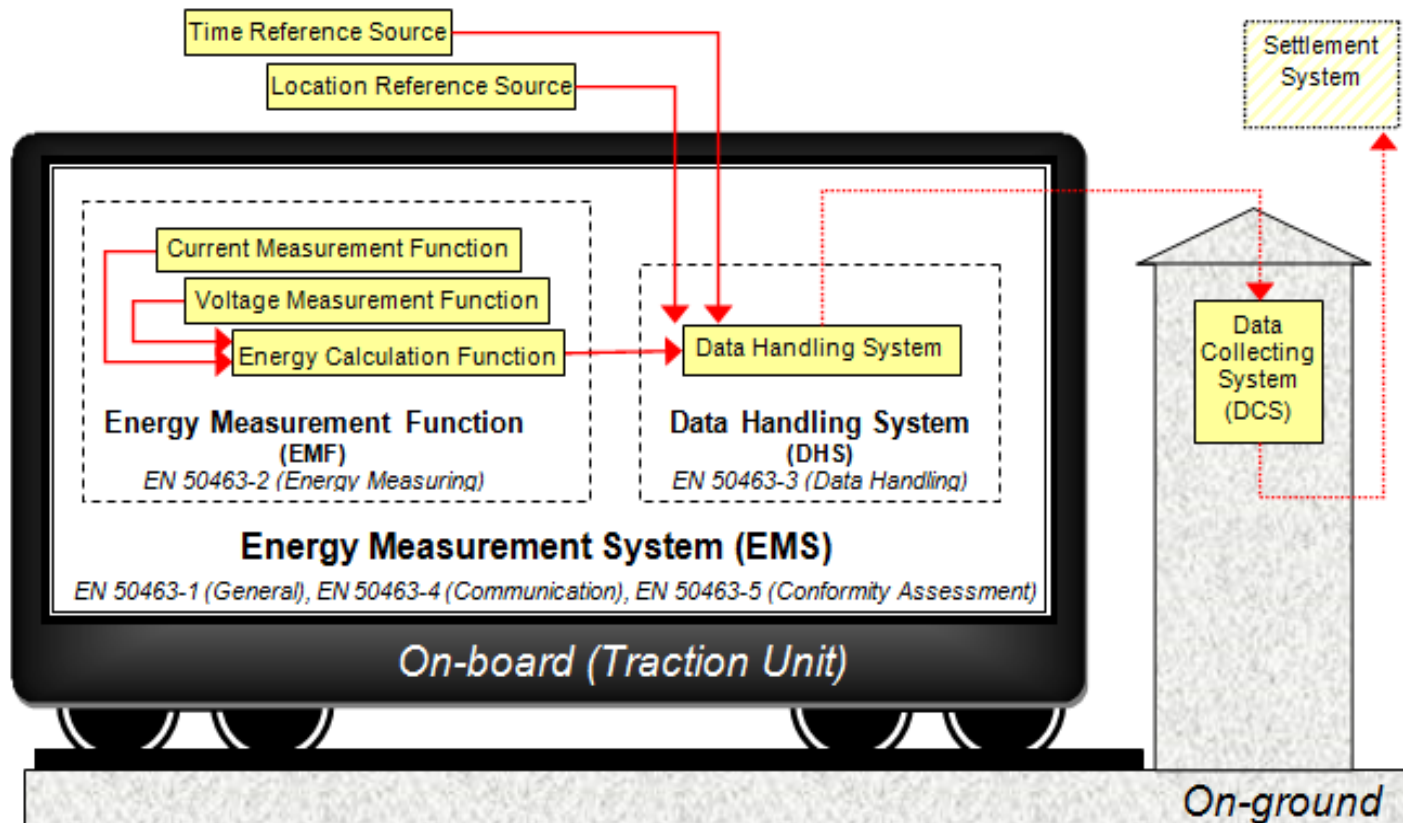
LOC&PAS TSI - On-board energy measurement system (i)

- › The **EMS** -> measurement of all active and reactive electric energy taken from or returned (during regenerative braking) to the overhead contact line (OCL) by the electric unit.
- › **EMS** shall ensure at least the following functions: **Energy measurement function (EMF) and data handling system (DHS)**.
- › A **suitable communication system** will send the measured data to an on-ground **DCS**.
- › This system is suitable for **billing purposes**; and it shall be **accepted for billing in all Member States**.
- › The EMS rated current and voltage shall be matched to the electric unit rated current and voltage (**several traction energy supply systems**).
- › **Data stored in the EMS shall be protected** against loss of the power supply and the EMS shall be protected from non-authorised access.

LOC&PAS TSI - On-board energy measurement system (ii)

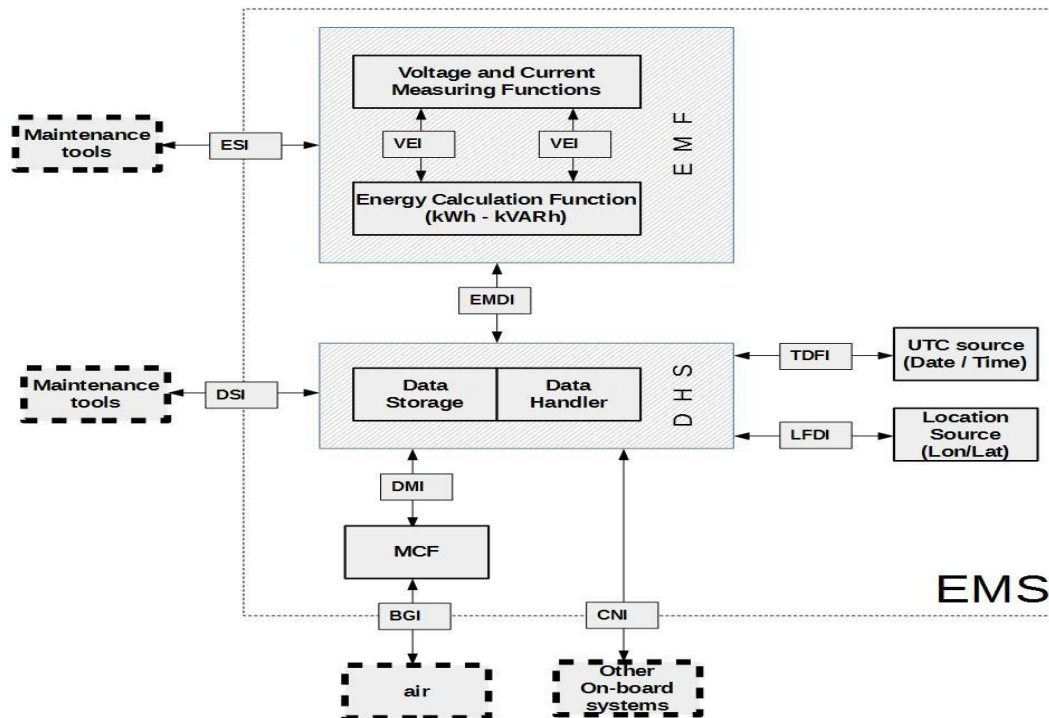
- › An **on-board location** function -> from an external source to the DHS **shall be provided** in networks where such function is necessary for billing purposes only.
- › In any case, the EMS system shall be able to accommodate a compatible location function.
- › The maintenance documentation shall include any periodic verification procedure -> accuracy level of the EMS during its lifetime

ENE and LOC&PAS open point – EN 50463-4:2016



ENE and LOC&PAS open point – EN 50463-4:2016

› Communication between functions of the EMS

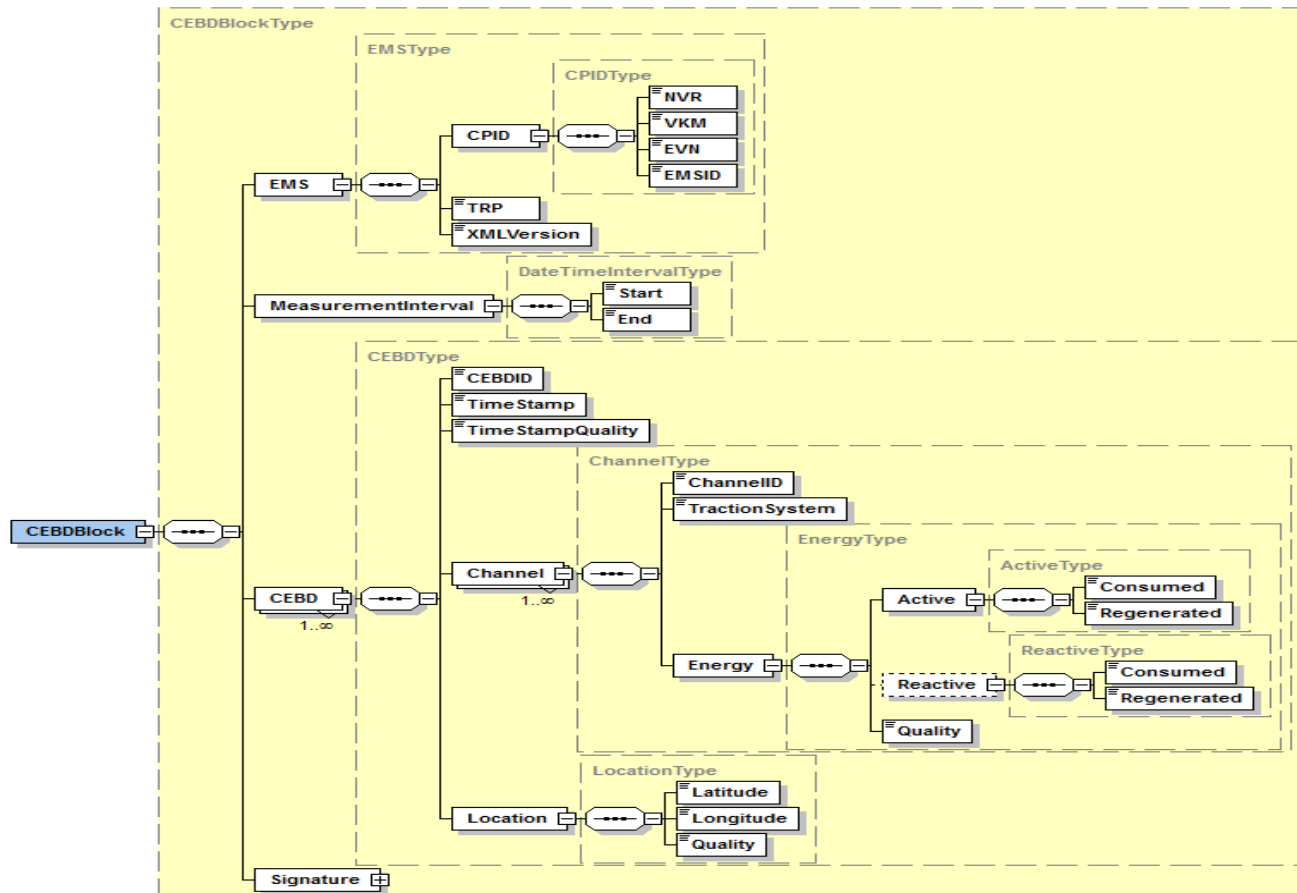


- › **Application services (service layer)**
- › All EMS and DCS shall support these services:
 - automatic transfer of CEBD blocks (AutomaticTransferCEBDBlocks);
 - request CEBD blocks (RequestCEBDBlocks);
 - automatic transfer of a heartbeat (AutomaticTransferHeartbeat).



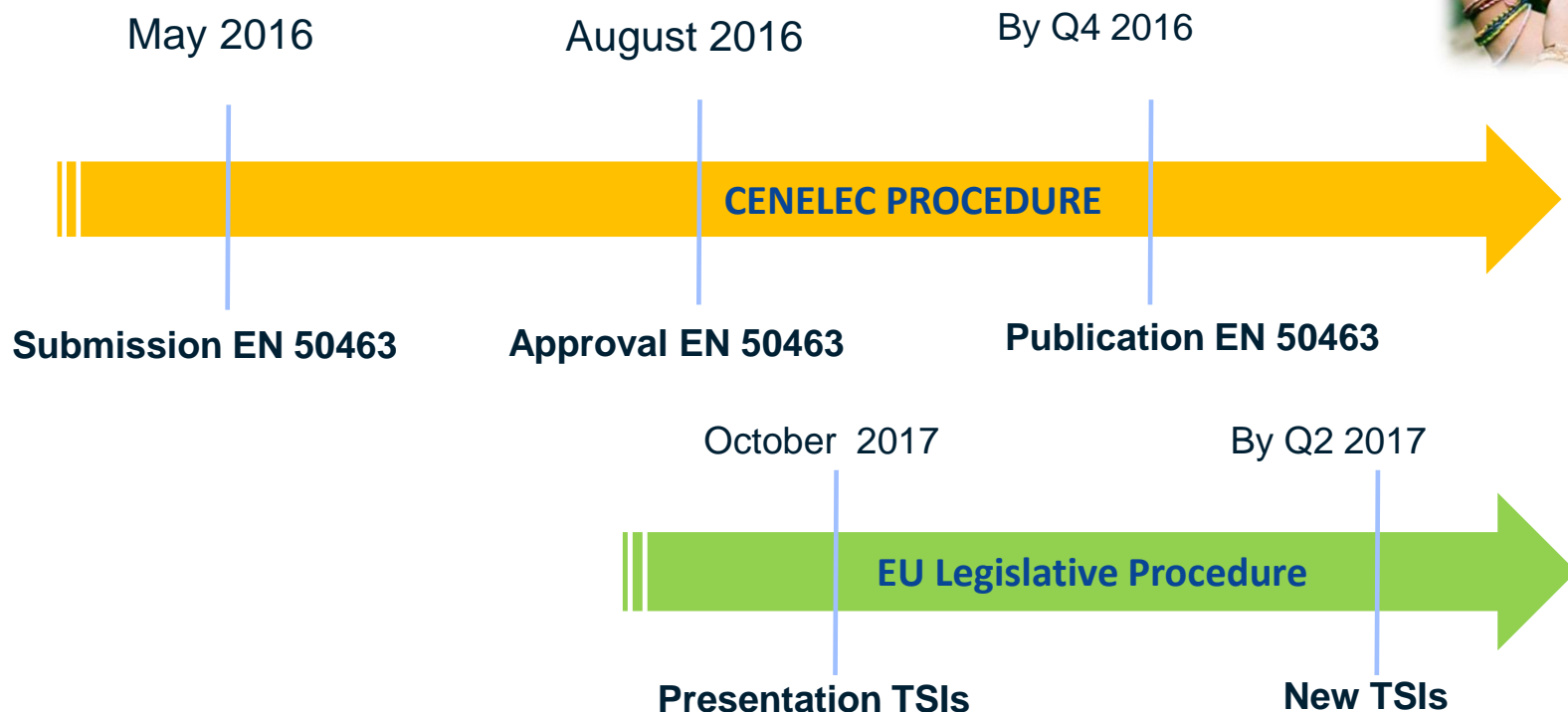
ENE and LOC&PAS open point – EN 50463-4:2016

› CEBD -



ENE and LOC&PAS open point – Next Steps

- › CENELEC National Committees Decision expected by end August 2016.
- › Translation to be ready by December 2016
- › Major Milestones:





Thank you!

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