Mr John Pierce
Australian Energy Market Commission
PO Box A2449
Sydney NSW 1235

October 17, 2017

Rule Change: 5 Minute Settlement (ERC0201 – online submission)

Dear Mr Pierce,

SATEC welcome the opportunity to provide detail in working collaboration with all stakeholders. SATEC is a leading electrical metering technology provider, and a respective new entrant to the wider National Electricity Market (NEM) framework locally. SATEC's response is related to such technology and innovation in the global metering market, with respect to the '5 Minute Settlement Rule Change' and embracing improved technology in the advancement for metering solutions.

Improvements in metering is ongoing. SATEC's embedded controllers, and that of other metering systems vendors offer, improve offerings from previous adapted technologies. Communication and control applications such as Demand Reponses, Demand Side Participation, Remote Disconnects, etc., are exerted through localised distributed logic improving throughput of any control system architecture. Remote 'over the air' type communications and configuration changes are possible with many meter manufacturers including SATEC.

Current day metering support five minutes interval data, or lower such as 1-minute interval periods, as expressed by others. Existing technology facilitates data storage of more than 200-day. 1-minute interval data with existing memory within hardware for subsequent 1-minute settlement would exceed current Type 4 requirements. Improvements in memory technology is allowing improvements in reducing the physical size of metering hardware. Data storage improvements from metering vendors has increased from kilo-bytes, to mega-bytes, up to giga-bytes benefiting longer storage requirements and further enhancing improving service offerings from big data applications in time. Memory partitioning techniques further allow flexibility in deployment to serve multiple and future purpose. Ongoing adaption of latest memory storage technology will ultimately support future requirements, however SATEC can provide existing hardware to the market meeting above qualifications in five minute interval requirements.

Existing metering technology allows flexible configuration of the 'Power Block Demand Periods' for demand applications: Predictive Demand, Accumulated Demand, Maximum Demand, Time of Use Maximum Demand, etc. The 'Number of Blocks in Sliding Demand' is configurable also, providing more granularity of interval trading periods.

SCADA profiling traditionally uses polling intervals, e.g. 4-second. It is possible for SCADA to communicate to interval data logs for revenue purposes. This poses a traditional real-time environment for SCADA, but with mechanism of direct access to five minute trading data. Traditionally these techniques have not been adapted widely, but can significantly improve dispatch and pre-despatch abilities with less intervals of five minute or as low as one minute.

High availability of data within a 'single-sinusoidal-register-update' or 'sub-cycle-response' allows SCADA or other applications deliver more real-time application support. Direct Ethernet to the node provides improve data transmission rates. Ethernet medium supports fibre optics providing improved bandwidth and fundamentally throughput for control systems such as SCADA environments and other infrastructure. Multiple TCP sockets of Ethernet NICs provide multi-master functionality generally not achieved with RS-232 or RS-485 type implementations, enhancing SCADA functionality with access from SCADA, PLC and RTU applications simultaneously for respective function.

To assist SCADA, existing technology exists utilising embedded programmable controllers within metering hardware. A control expression programmed in the meters' s embedded controller allows, single cycle (20ms @ 50hz) response time for execution of control and/or information awareness through automatically sending messaging to SCADA applications or other control and information systems. Demand response type applications, or automatic messages sent to SCADA applications with millisecond (ms) response time enhancing traditional polling techniques.

Localised embedded controllers also allow distributed logic programming techniques and their use will ultimately assist the challenge of frequency response in time from traditional generator ramp time. This will assist emerging technologies and the grid providing more real-time information. A larger distributed footprint will need to utilise more services.

The discussion of an Application Programming Interface (API) is valid. An API can effectively support increased transactional data serviced at an enterprise level. Web services or the API, from providers such as SATEC and others moves towards a future interconnected network. Through use of these services, improved transparency adapts modern software platforms more readily. As consumers become more aware, consumer services are likely to be more desired. Current platforms offer integrated interval data from API and/or web services such as our and others.

Cost improvements in technology has significantly lowered cost of metering supporting enhancements in metering metrology accuracy international standards. SATEC comply with various international and local standard requirements including supply of metering hardware to a minimum Accuracy Class 0.5S according to IEC 62053-22. Adaption by AEMO, AEMC and others in relation to clearer defining metrology standards ultimately will assist market clarity; relevant as compared to IEC 62053-21 with redefinition of Type 4 accuracy requirements. SATEC see meter churn, in any proposed five minute interval adaptation, as an opportunity to further invest in our commitments to research and development towards innovative electrical metering technologies.

Best Regards,
Ron Davis

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