TITLE: Next Generation Analytics in the Energy Sector: Focus on Electric Utilities

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This paper/presentation highlights the need of advanced analytics in energy sector and details on the technology that would be used to achieve this.

Next generation in-database analytics can help solve some unique problems and challenges in the all forms of energy sector – Oil and Gas, Electric and renewable. Disparate data is generated in the daily generation, transmission and distribution as well as management, sustainability and customer service in almost every energy resource. What would be the best way to harness this data for process, people and resource optimization at every aspect of energy lifecycle?

The next generation platform for analytics should not only be able to deliver real-time historical and report-based information, but should also be able to support adaptive needs in this business. This system is designed to be to handle information – structured and unstructured (Variety in the context of big data), increasing speeds of generation of this data – due to increased monitoring and infrastructure (Velocity in the context of Big Data) and increasing volumes.

This presentation will detail the approach of ingesting the data in an incremental method and on harnessing the analytics from this data - with focus on the technology infrastructure and IT process that can be leveraged, to maintain standardization in the industry – but at the same time allowing for differentiation and customization. The CIM data model is be at the core of this analytics processing engine. The CIM model is proposed to be represented, within the database by expanding on the data model that collects the meter information today. The superset of all the metrics collected by various meters would be starting point and with time, this data model is expected to include the other business unit attributes. Changes to the core-meter model, would at most be incremental – by way of data model column or table changes. The data model for areas like OMS, DA etc could be added upon as the business processes start to converge on this central platform to process analytics. The use of unstructured data processing engine viz. Hadoop is also expected to grow over time. The CIM data model would be able to make calls out to the HDFS and map-reduce framework of Hadoop for such processing. In summary, the flexible and agile, CIM based database processing engine will store the ever growing structured content and where relevant will seamlessly access the unstructured content from Hadoop to deliver mash-up information e.g. location based workforce management.