Customer Workshop in Amaravati City – Energy Infrastructure for “The people’s capital of Andhra Pradesh”

In October 2015 the Indian Prime Minister, Narendra Modi, laid the foundation stone of Amaravati, the new capital of the Indian state of Andhra Pradesh. The new city along the river Krishna is envisioned to be the pioneer smart city of India aiming to be world class and at par with standards set forth by other capital cities like Singapore, Berlin, or London. By 2050 Amaravati city is expected to be home for 3.6 million inhabitants in an area of over 200 km² consisting of 27 townships and 9 theme cities.

On the pathway towards their vision, Siemens was invited to hold a workshop on the development of smart integrated energy infrastructure to provide best practices to the city’s stakeholders such as the regulatory authority, the district commission, transmission system operator, distribution system operator and involved consultants.

Based on the collaboration between Siemens’ Indian EM Sales and the City Account departments Siemens PTI led the one-day workshop, in which Siemens EM presented solutions and references in global bench mark power infrastructure along with possible business models to realize the vision of Amaravati City. Starting with our trusted power system consulting and business advisory in Siemens PTI we presented products like the Smart Grid Compass® for value oriented utility business transformation and our 60 years experience in greenfield and brownfield system planning as shown in exemplary projects in India (Mumbai distribution network planning), Germany (planning handbook for DSOs), or UAE (Masdar smart grid concept).
A first review of the currently planned power infrastructure revealed the interesting approach of using only three stages for power transmission and distribution. By avoiding one high and one medium voltage level, compared to the standard design of the Indian power system, losses and voltages drops could be reduced supporting the city’s ambition to keep total transmission and distribution losses at global benchmark.

Discussing further aspects of the customer’s ambitions (especially regarding sustainability) such as the planned implementation of 1.8 GW solar generation by roof-top PV as well as 100% electric transport gave EM DG and MS the opportunity to present their product solutions like control center, Energy IP, MindSphere and storage systems striving for advanced network automation and highest reliability.

And also EM TS solutions perceived great interest, as Gas Insulated Line (GIL) could be used to connect the three foreseen 220 kV supply zones and Siemens’ STATCOM/SVCs may be installed to overcome the challenges of the planned implementation of PV.

Bringing all the different aspects and objectives together the advantages of an integrated transmission and distribution planning became clear, as technical challenges might occur in the distribution system mainly, but would have an impact on the transmission system as well, if not solved “locally”.

**Figure 2 - Integrated distribution (petrol) and transmission (orange) planning**

For that reason Siemens PTI offers a unique combination of industry leading expertise and software that can successfully deliver on the vision of the future energy supply, including:

- A global organization that is already actively defining and implementing integrated planning solutions and evolving our industry leading, integrated transmission and distribution software suite with PSS®SINCAL and PSS®E as well as dispatch simulation accordingly
- A thorough understanding of the process and alignment with the need for enhanced planning capabilities for efficient and sustainable energy systems
- A project team that will share and apply its experience and expertise gained from our end to end services and world class product functionality for the integrated planning processes
- A field proven process to jointly develop the requirements and roadmaps of similar nature with a long history of successful implementations