

SYMPOSIUM ON INTEGRATED APPLICATIONS (B5)
Integrated Applications End-to-End Solutions (1)

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INTEGRATED APPLICATIONS: END-TO-END SERVICES ADDRESSING ENERGY SECTOR
NEEDS

Abstract

Since the end of World War II, there has been an industrial boost in developed and under development countries. Industrialisation has been possible thanks to a continuous and cheap energy supply, based mostly on fossil energy sources. However, this approach cannot continue unabated because of the many hazards causing to people and the environment (pollution, climate change, famines, etc.), and because of the depleting and more difficult to access sources of fuel.

There is a clear willingness in developed societies to move from the current situation to what is now called a “low carbon” economy. This change of mentality requires the development of new technologies, but also the proper and reasonable utilisation of current existing energy resources. Concepts such as weather forecasting, site qualification, intelligent balance, distributed management or remote monitoring are of common usage in the energy sector today.

Important efforts in R&D are currently underway within the energy industry to find solutions satisfying their needs. More long-term research is needed, but challenges for are here and now: solutions have to be found in the short term. Energy stakeholders are already using space technologies to tackle some problems. They are finding significant the potential of these technologies, even in the short term. The integration of existing space technologies within currently used systems can provide services answering some challenges the energy sector is now facing.

Within ESA’s ARTES 20 Integrated Applications Promotion (IAP) Programme, a number of initiatives have been launched, showing the potential of this integrated approach including:

- Renewable energy sources forecasting, particularly solar, wind and hydroelectric.
- Electricity grids management and SmartGrids.
- Infrastructure monitoring, (gas pipelines, oil wells, etc.).
- CO2 storage sites monitoring.

Following the rationale of the IAP Programme, ESA has started awareness activities to approach the energy community trying to identify those areas where space can provide a solution. ESA is currently in the process of establishing one ‘ambassador platform’ focused on renewable energies. The selected partner must have strong links with the user community, capacity to discover needs and federate demand to reach a critical mass that can guarantee the sustainability of developed services.

Despite all the results obtained, there is still a long way before renewable energies can be considered as a real alternative to traditional sources; what it is true is that they are becoming a reality, and space-based services are proving themselves as one useful tool.