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Digital solutions for optimization of asset operation and maintenance: MHPS TOMONI® for power plant operators and MHI ENERGY CLOUD® Service for large energy users

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Abstract

European energy intensive industries are considerably affected by today's changing energy market landscape. Securing quality, competitiveness and low environmental impact of final industrial products during rapidly changing energy market conditions requires extended efforts from industries' side. More specifically, the ongoing increase of RES' share in energy mix and the European targets on energy efficiency in industry have several implications on the industrial sector. On technical aspects these may be additional requirements on flexibility, control reserve, dispatchable power generation, demand side management, energy storage, while on economic aspects these may be a decrease of whole sale electricity price, an increase of taxes and surcharges, and promotion of disruptive business models. In this changing landscape the task of matching energy supply with energy use following a continuous optimization process including quality, cost and security of supply aspects becomes of prime importance. Mitsubishi Heavy Industries has developed ENERGY CLOUD® Service, an integrated toolbox of solutions assisting large energy users to overcome these challenges. It may support customer's needs in different operating levels, from a) performance monitoring, visualization and O&M optimization, to b) data analysis and evaluation for plant engineering level to c) providing information to management to supporting strategic decisions. Additionally, TOMONI® is MHPS's state of the art analysis and condition monitoring tool utilizing advanced AI techniques for improving power asset operation and maintenance. ENERGY CLOUD® Service and TOMONI® utilize MHI's and MHPS's vast industrial know how and own developed AI technology, in order to use operating data towards optimization of operation and maintenance of assets and overall plants. In the present paper additional information about successful implementation cases of ENERGY CLOUD® Service and TOMONI® are reported.