## Advanced Process Control (APC) Plant performance on a new level



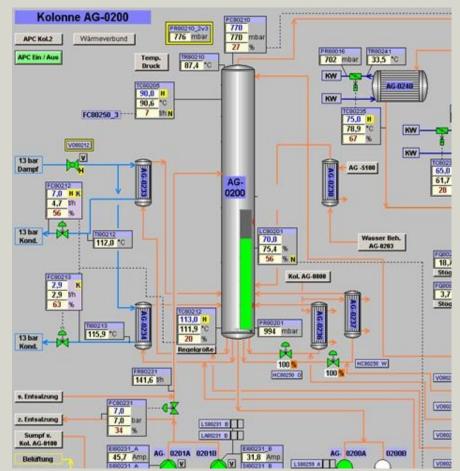
Status Quo	Our Solution	Your benefit
<ul> <li>Interdependencies of process factors often lead to high fluctuations of operating parameters</li> </ul>	<ul> <li>Collection, analysis and evaluation of process parameters with optimization potential</li> <li>Optimization of the control concept</li> <li>Plant tests and model building</li> <li>Software-based/ lab-scale modeling</li> <li>Control loop adjustment (e.g. dynamic models)</li> <li>Delivery of necessary hard- and software</li> <li>Consulting, Engineering and Implementation in PCS7</li> <li>Installation and Commissioning</li> <li>Trainings</li> </ul>	Increase of throughput
<ul> <li>Thus a necessity is born to fix a disadvantageous target value in order to operate the plant with a sufficient safety margin</li> <li>Consequently, operation deviates from its designated mode which causes inefficiencies and unrealized profits</li> </ul>		Increase of quality
		Reduced consumption of resources and energy
		Reduction of operator intervention
		Support of start-up, load and product changes
		Optimized control

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Project information	<ul> <li>The customer produces approx. 650,000t / a of phenol at a plant in Germany</li> <li>The aim was to increase the automation of the plant and to reduce energy and material consumption</li> </ul>
Challange	<ul> <li>APC project parallel to the migration of the process control system</li> <li>Long time constants (8 hours to reach steady state)</li> <li>Difficult model formation due to strong coupling of the different parts of the plant (columns); Thus difficult to include interfering factors</li> </ul>
Siemens solution	<ul> <li>Implementation of automation in two steps:</li> <li>Tuning of the existing basic automation (PID controller)</li> <li>Development and implementation of a model-predictive multi-variable control for a column in a column network</li> <li>Training of plant personnel and EMSR managers</li> </ul>
Benefit for our	<ul><li>Critical head concentration can be kept stable</li><li>Savings in energy requirements and additives</li></ul>

Sustainability of optimization through combination of automation and



process know-how

customer