

Energiemanagement (EMS) en advanced process control (APC)

Hoe uw energiekosten *en* CO₂-uitstoot verlagen *zonder* uw productie te
beïnvloeden?



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20 juni 2023 | Hotel Vianen, Utrecht

Agenda

- Technologische introductie
- Toepassing: energiemangement (EMS)
- Toepassing: advanced process control (APC)
- Praktijkvoorbeelden
- Conclusie
- Q&A



Technologische introductie

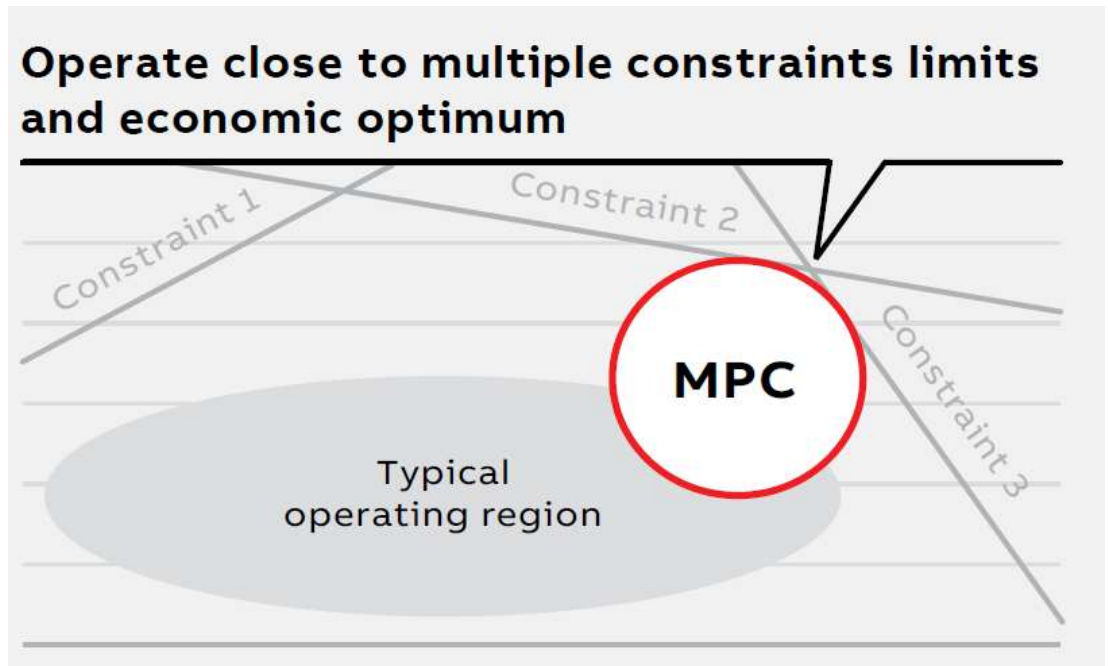
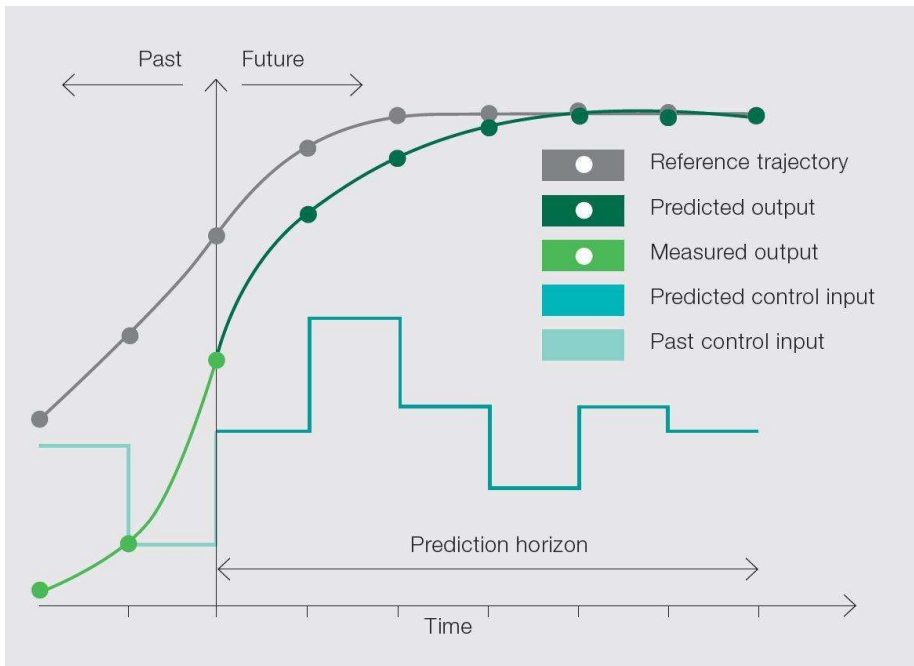
Optimalisatieberekeningen over voorspelde tijdshorizonten



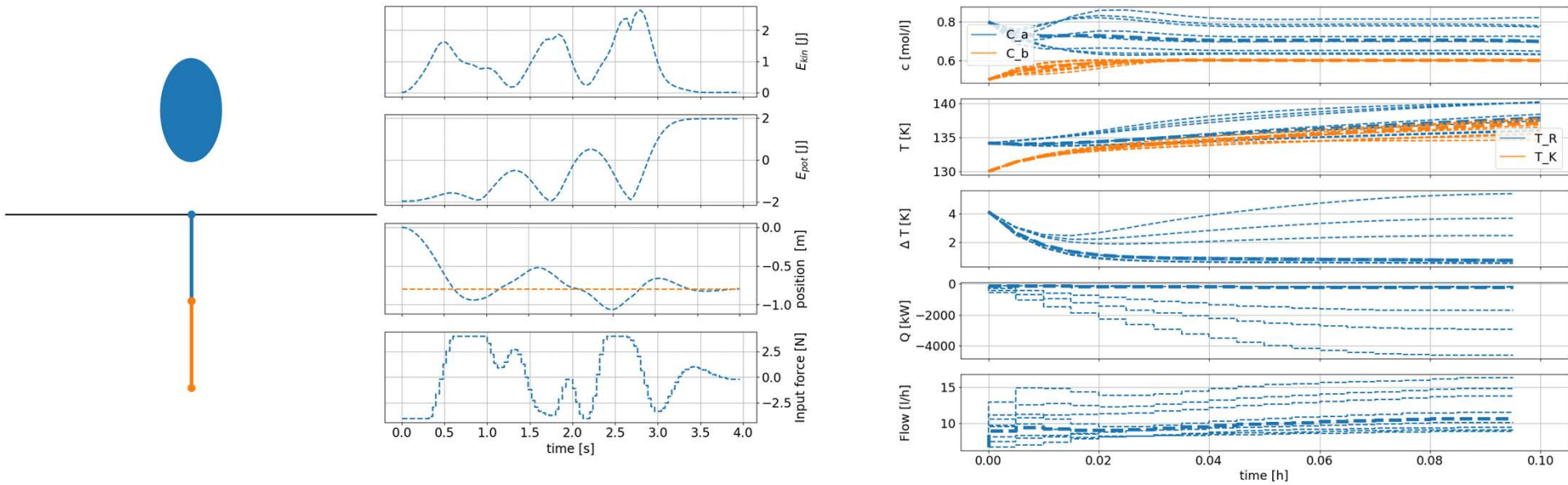
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Model-predictive control (MPC)

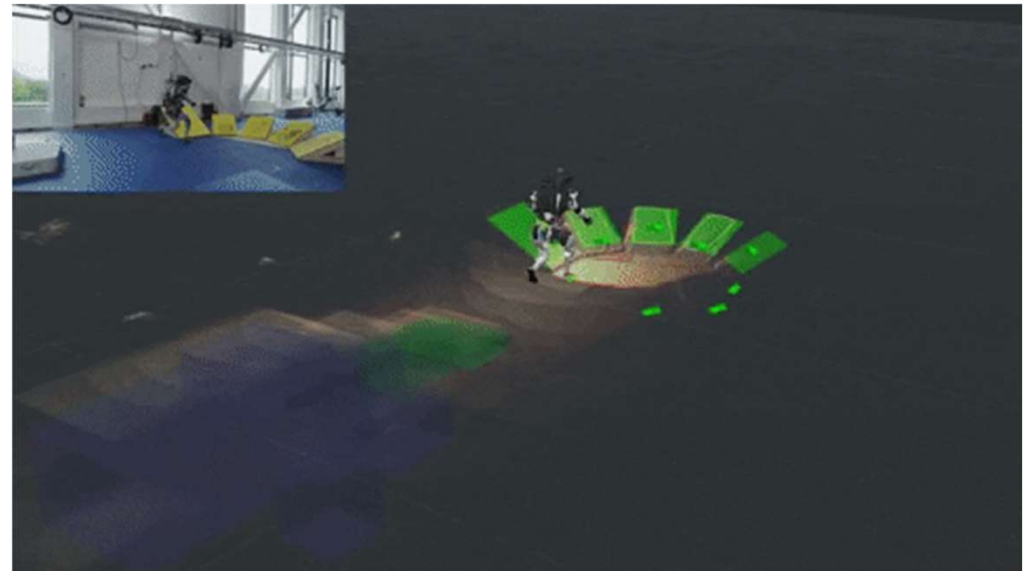
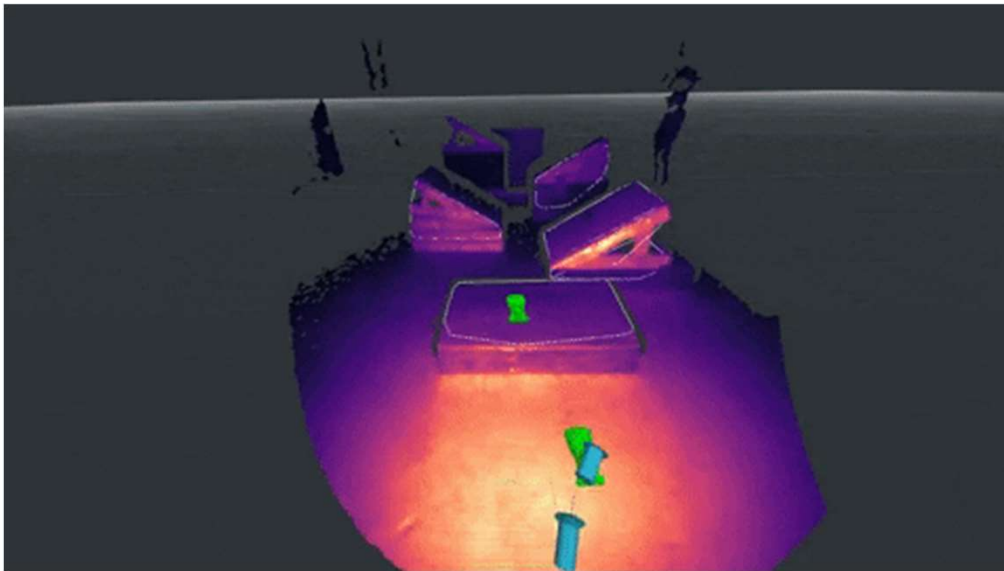


Model-predictive control (MPC)



Bron: S. Lucia, A. Tatulea-Codrean, C. Schoppmeyer, and S. Engell. Rapid development of modular and sustainable nonlinear model predictive control solutions. Control Engineering Practice, 60:51-62, 2017

Model-predictive control (MPC)



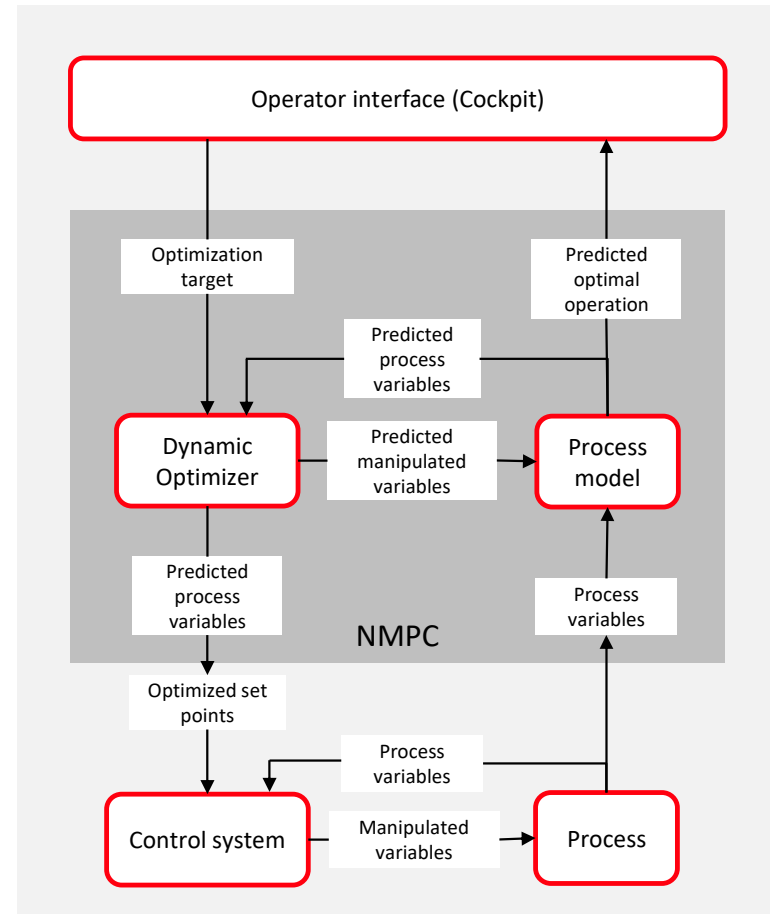
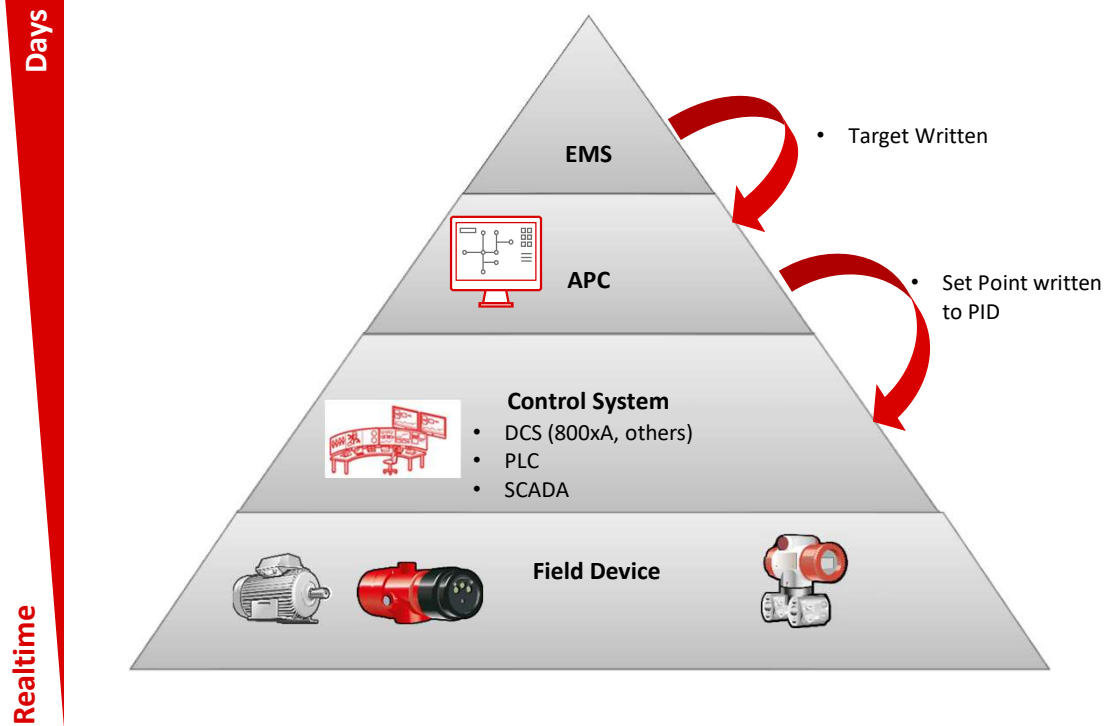
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Bron: <https://www.bostondynamics.com/resources/blog/flipping-script-atlas>



Model-predictive control (MPC)



Energiemanagement systeem

= energiemonitoring + optimale controle



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Energiemanagement systeem (EMS)



Monitoring & Reporting

- Enhanced user experience and visibility of your energy usage on-site
- PDF reports
- Excel export

Real Time Operation

- Real-time control and optimization
- Coordinated control at site level

Intra-Day- / Day-Ahead-Opt

- Intra-Day and Day-Ahead Optimization
- Optimal schedules based on forecasts, loads and prices + updated during day



Forecasting & Simulation

- ML Forecasting
- AI Enhanced Forecasting
- Digital Twin
- Steam and power



Multi-Site Operation

- Benchmarking sites
- Enterprise wide energy optimization



Advanced process control

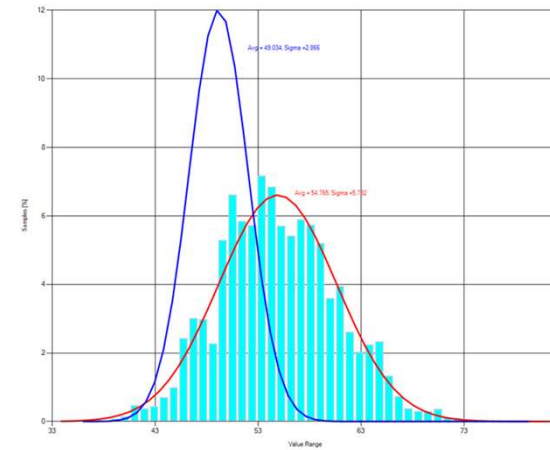
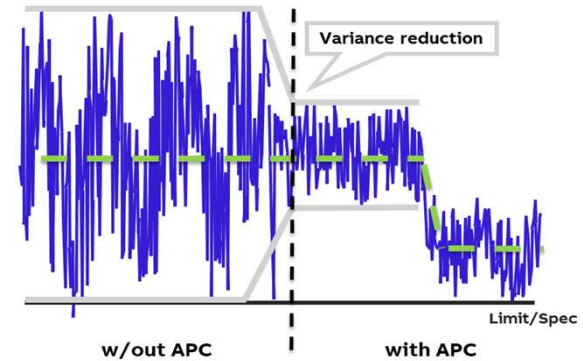
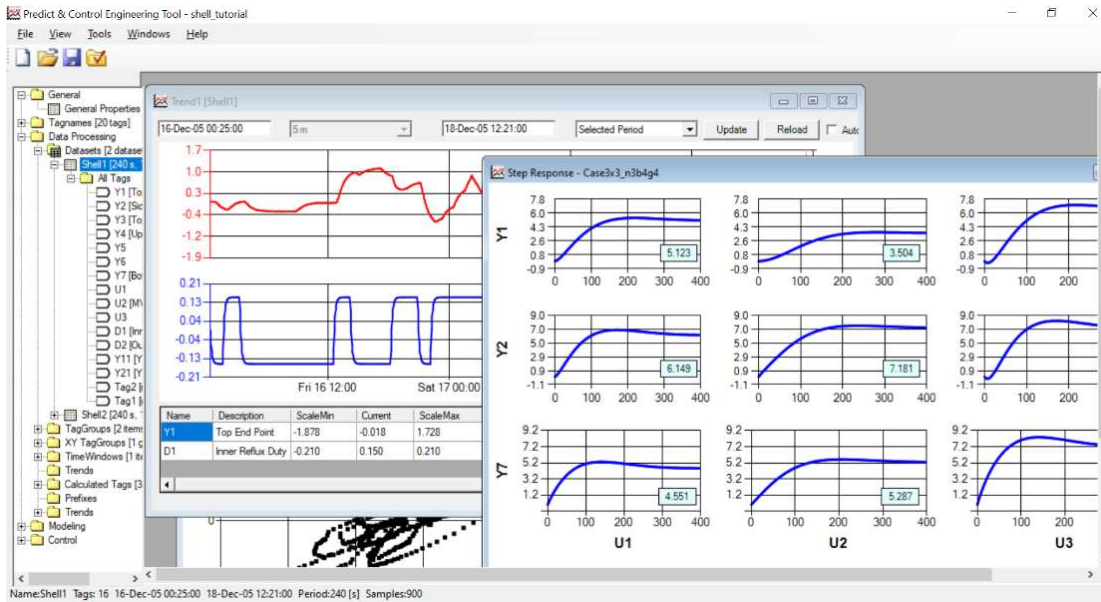
= optimale coördinator van uw proces (en bestaande PID loopjes)



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Advanced process control (APC)



Praktijkvoorbeelden

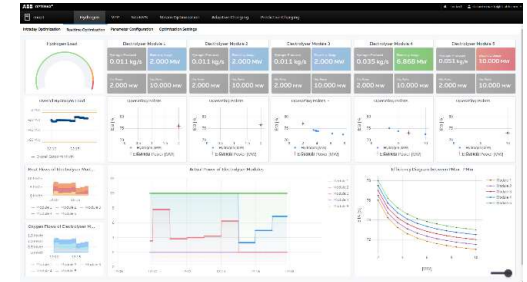
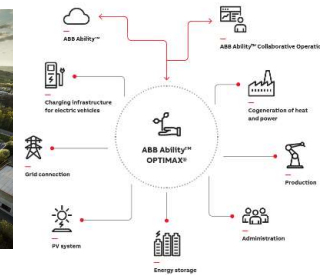
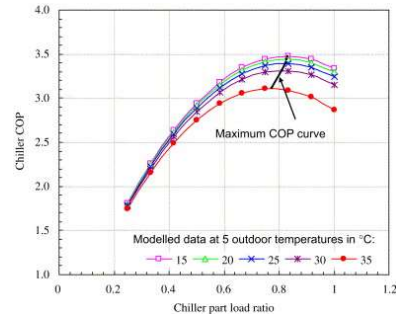
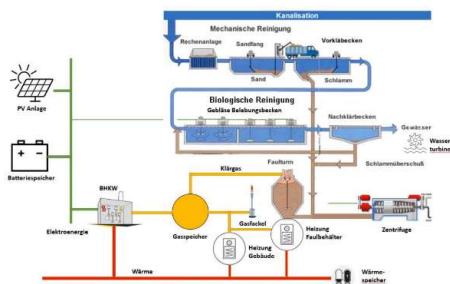
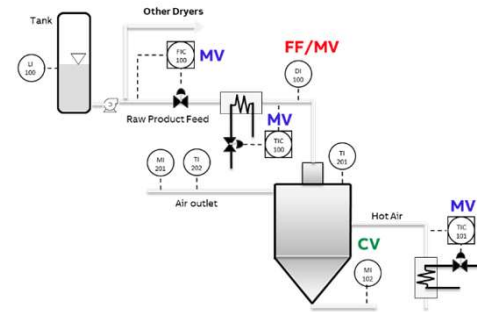
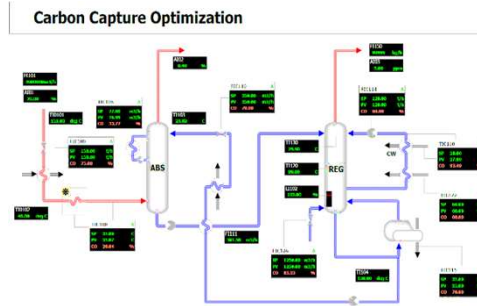
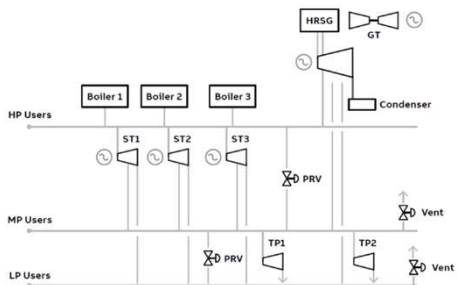
meer dan **200** referenties over de hele wereld in verschillende industrieën



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Praktijkvoorbeelden



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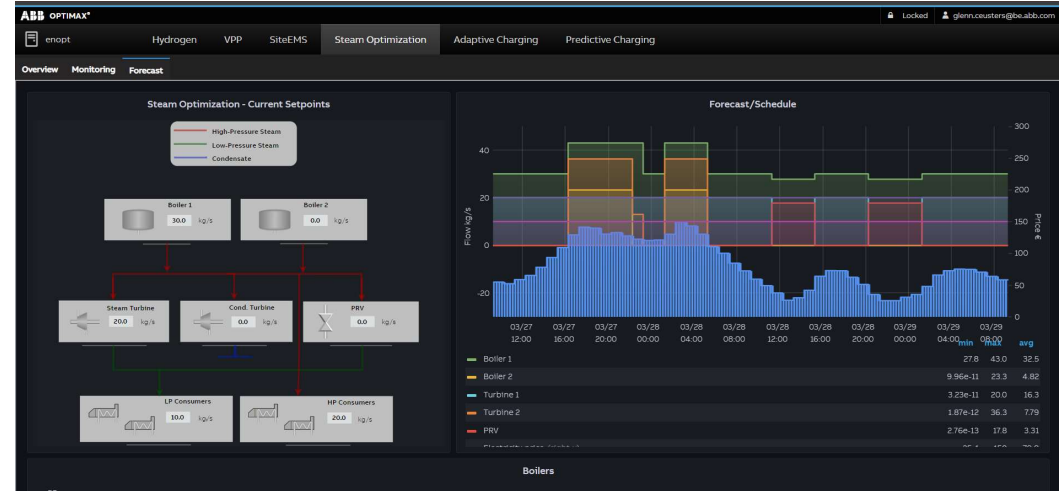
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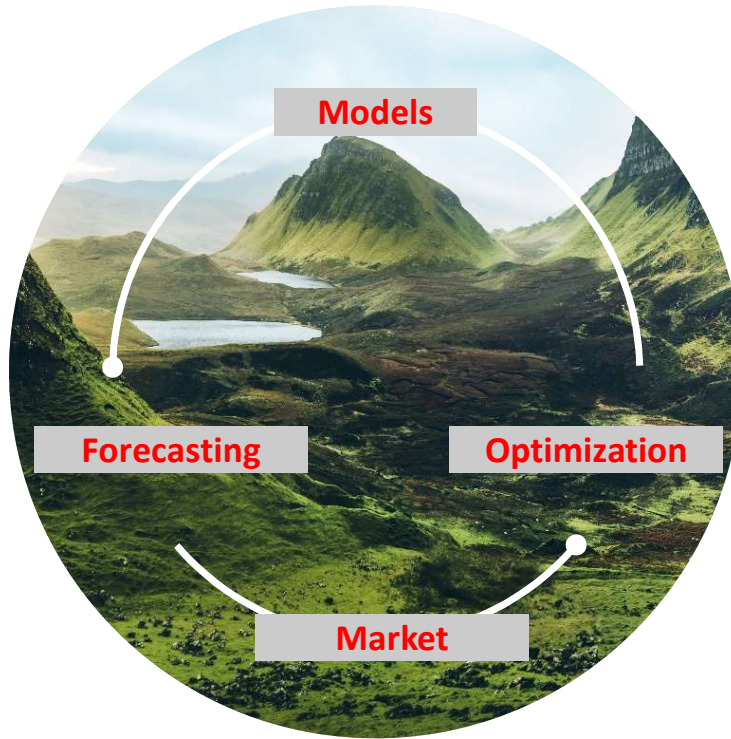
Praktijkvoorbeelden

EMS voorbeeld



APC voorbeeld





CO₂
↓ 100%

Cost
↓ 10%

Production
↑ 10%

Conclusie

Een financieel rendabele manier om aan de klimaatdoelstellingen bij te dragen!



Contactgegevens



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