“The challenge of implementing a small HP unit in the existing Greek energy environment”

ΕΣΜΥΕ
ΕΛΛΗΝΙΚΟΣ ΣΥΝΔΕΣΜΟΣ
ΜΙΚΡΩΝ ΥΔΡΟΗΛΕΚΤΡΙΚΩΝ ΕΡΓΩΝ

THEME:

“VAPTECH - 110 years of hydropower on 5 continents”

PRESENTER:

Alexandros Voreopoulos
CEO VAPTECH

19.03.2023 Athens, Greece

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More than 100 years of excellence in engineering and manufacturing

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More than 100 years of excellence in engineering and manufacturing

1914

Establishment

1949

Specialization in the manufacturing of turbines, water pumps, presses and compressors

1954

Building the complete renewable Hydro network in Bulgaria in cooperation with National Electric Company (NEK).

1982

Partnership with Toshiba, Japan for the biggest Pump Hydro Storage Hydro project in Eastern Europe at that time- Chaira project

1990's

Entering the Global Markets:

- Hydro equipment with more than 4000 MW worth of installed capacity in Europe, Asia, South America and Africa
- More than 5000 presses in operation in Germany
  1000 in Italy
  500 in Spain
  1500 in Russia

2000-Present

Complete solution provider for Hydro Power with own VAPTECH brand

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Competencies

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General Experience
MARKET SHARE

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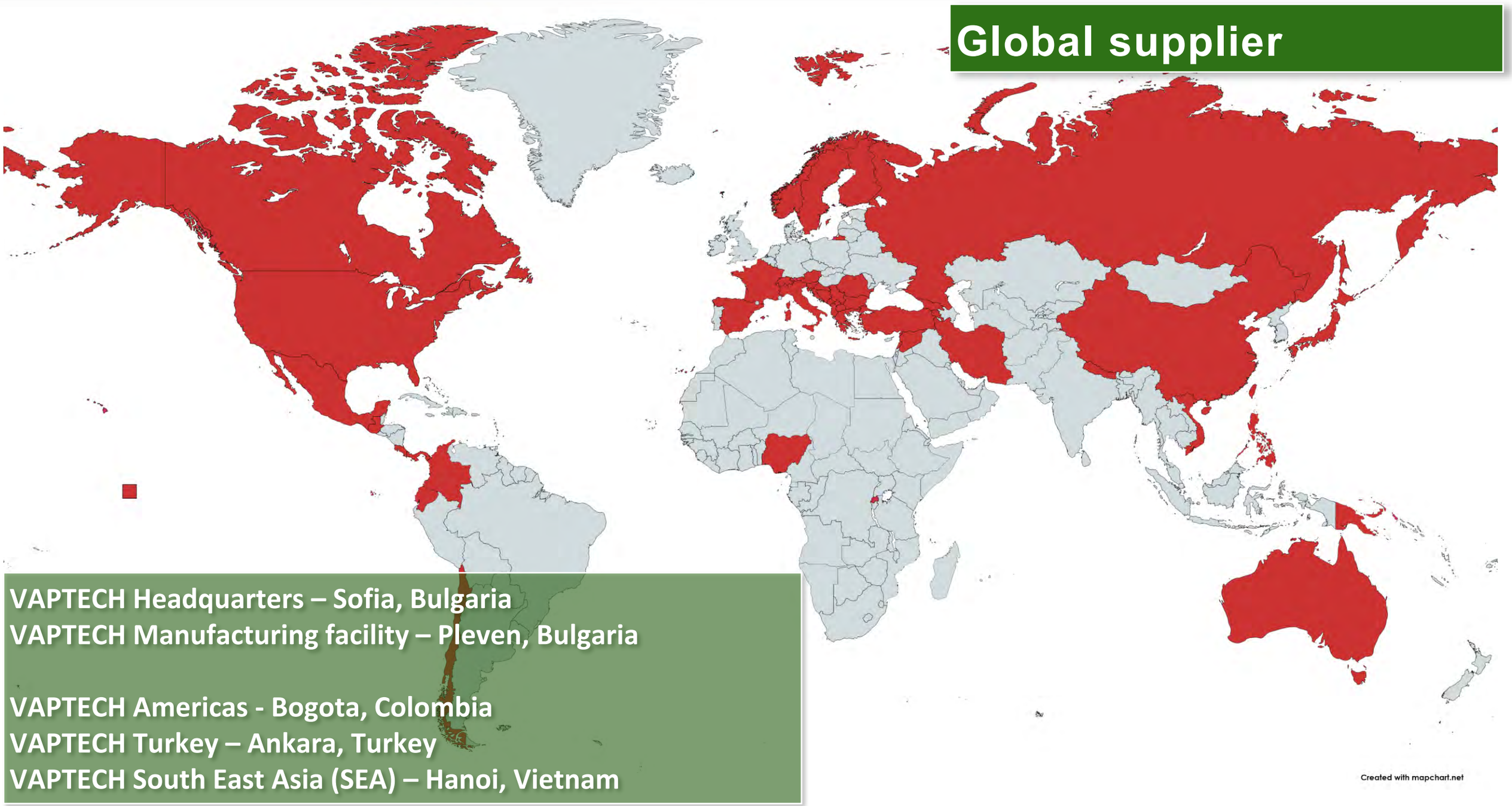

VAPTECH Headquarters – Sofia, Bulgaria
VAPTECH Manufacturing facility – Pleven, Bulgaria

VAPTECH Americas - Bogota, Colombia
VAPTECH Turkey – Ankara, Turkey
VAPTECH South East Asia (SEA) – Hanoi, Vietnam

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Complete E&M equipment

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- Analysis of the project conditions
- Turbine equipment
- Main inlet valve
- Generator equipment
- Hydraulic pressure system
- Digital control and monitoring system
- Electrical balance of plant
- Integration of all systems into one
- Supervision and Installation
- Put into operation
- After sales services

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Turbine Range

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PELTON

- Horizontal and vertical arrangement
- 1-6 nozzles
- Head up to 1000 m

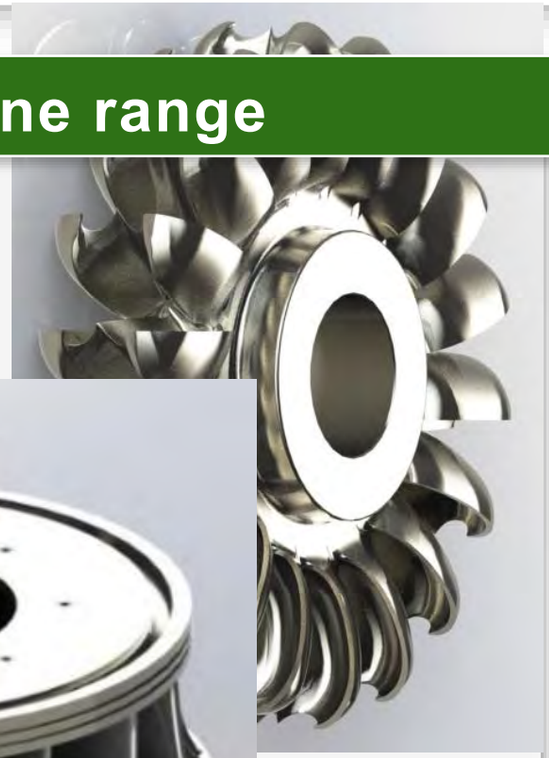
FRANCIS

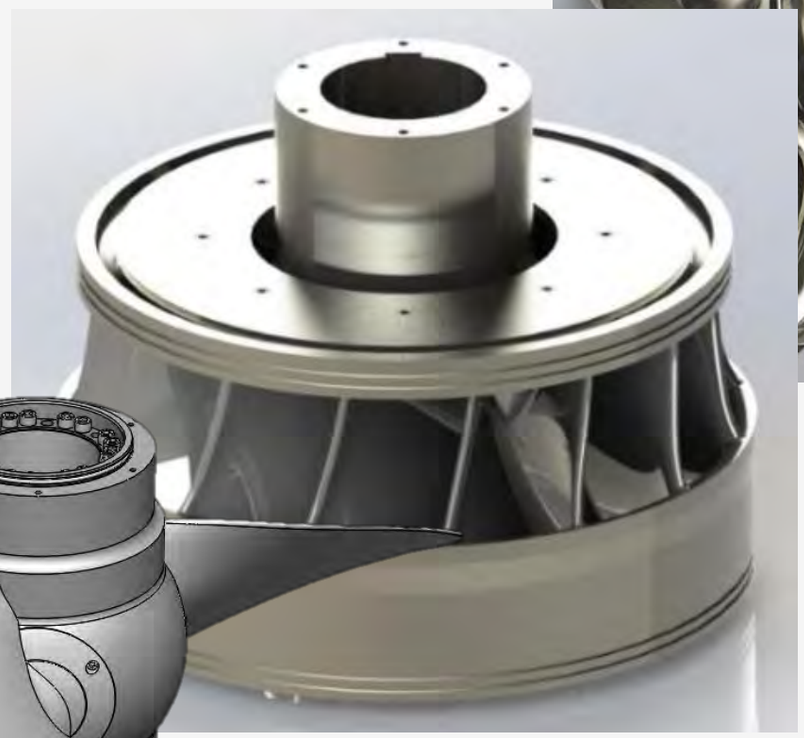
- Horizontal and vertical shaft arrangement
- Ns 85…390 min-1
- Head up to 400 m

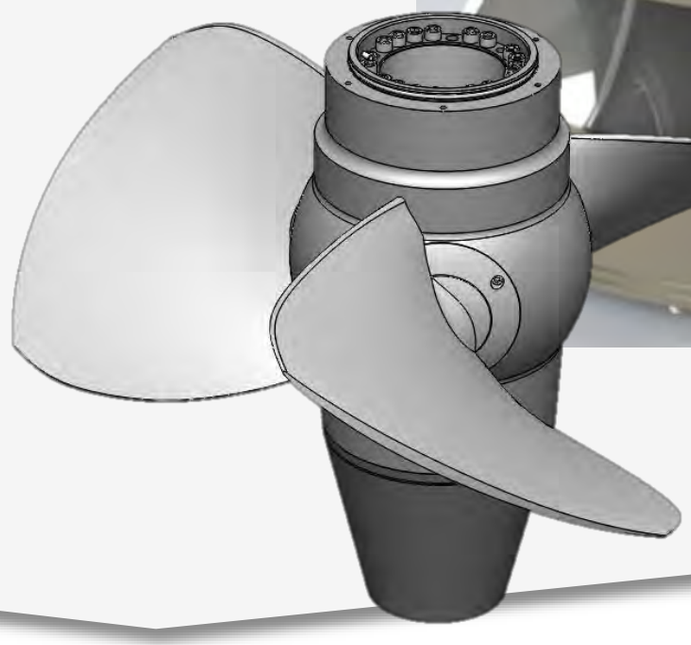
KAPLAN

- Horizontal and Vertical shaft arrangement
- Double regulated
- 3-6 blades
- Head up to 35 m

Complete turbine range







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Design

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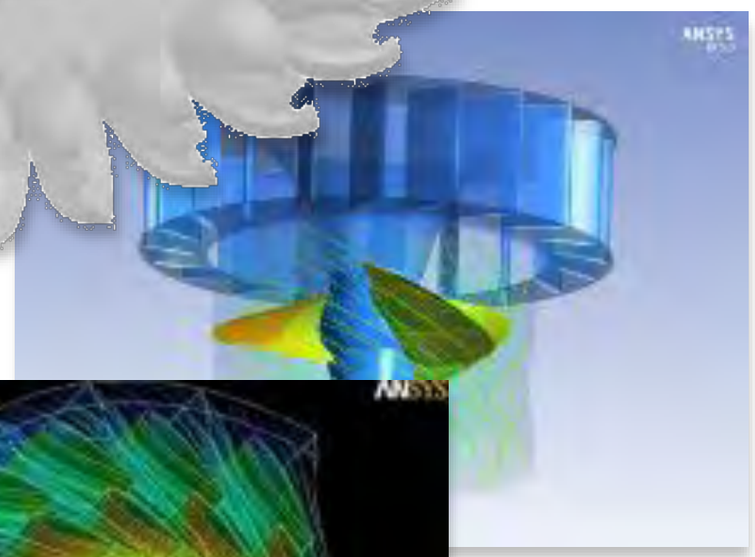
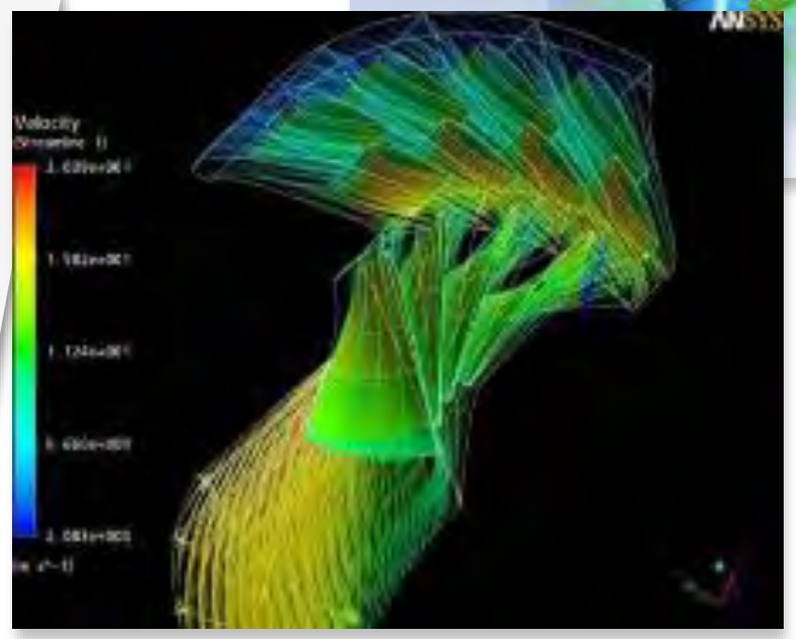
- High Turbine Efficiencies
- Stable operation in whole power range
- Cavitation characteristics for optimized civil construction
- Transient condition calculations for waterway optimisation
- Innovative technologies for optimal utilization of the water resources

Maximum efficiency for maximum return of investment





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Digital Control System

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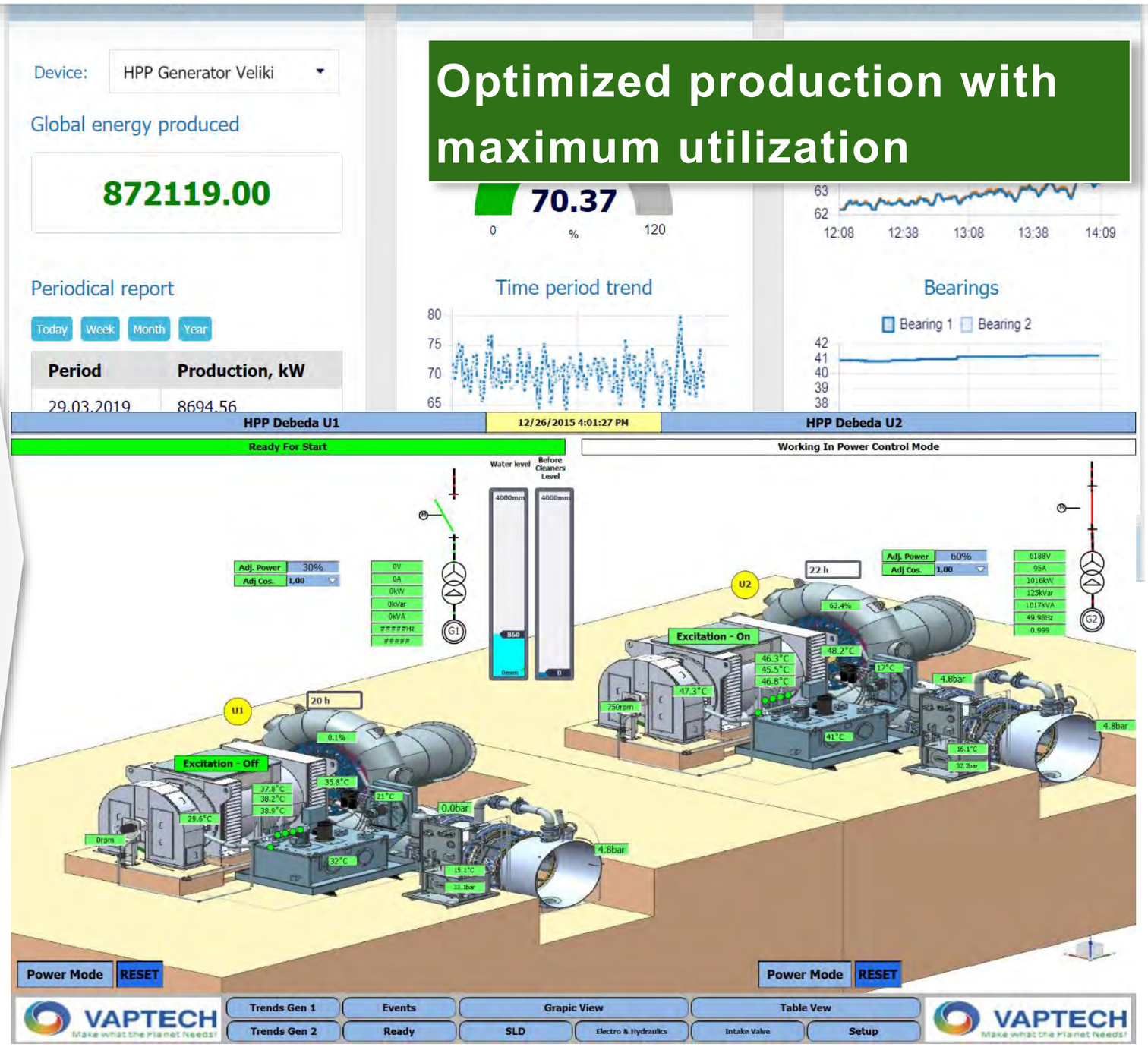
- Complete solution for integrated control and monitoring
- Customized solution
- Flexible and modular architecture
- Remote service engineering and data station
- Real-time-monitoring
- Innovative algorithms for precise system operation
- Preventive and predictive maintenance



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Lean Manufacturing

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- Machining Ø11,5 m / 100 t., Assembly 170 tons.
- Heat treatment
- Welding
- Post-weld heat treatment
- Machining in 3- and 5-axis CNC machines
- Treatment of surfaces and functional tests
- Non-destructive testing according to EN
- In-house assembly
- Tracking materials and processes in accordance with ISO 9001
- Welding processes certified by TUV

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Selected References

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Highlights:

Optimized delivery time and optimum time for installation

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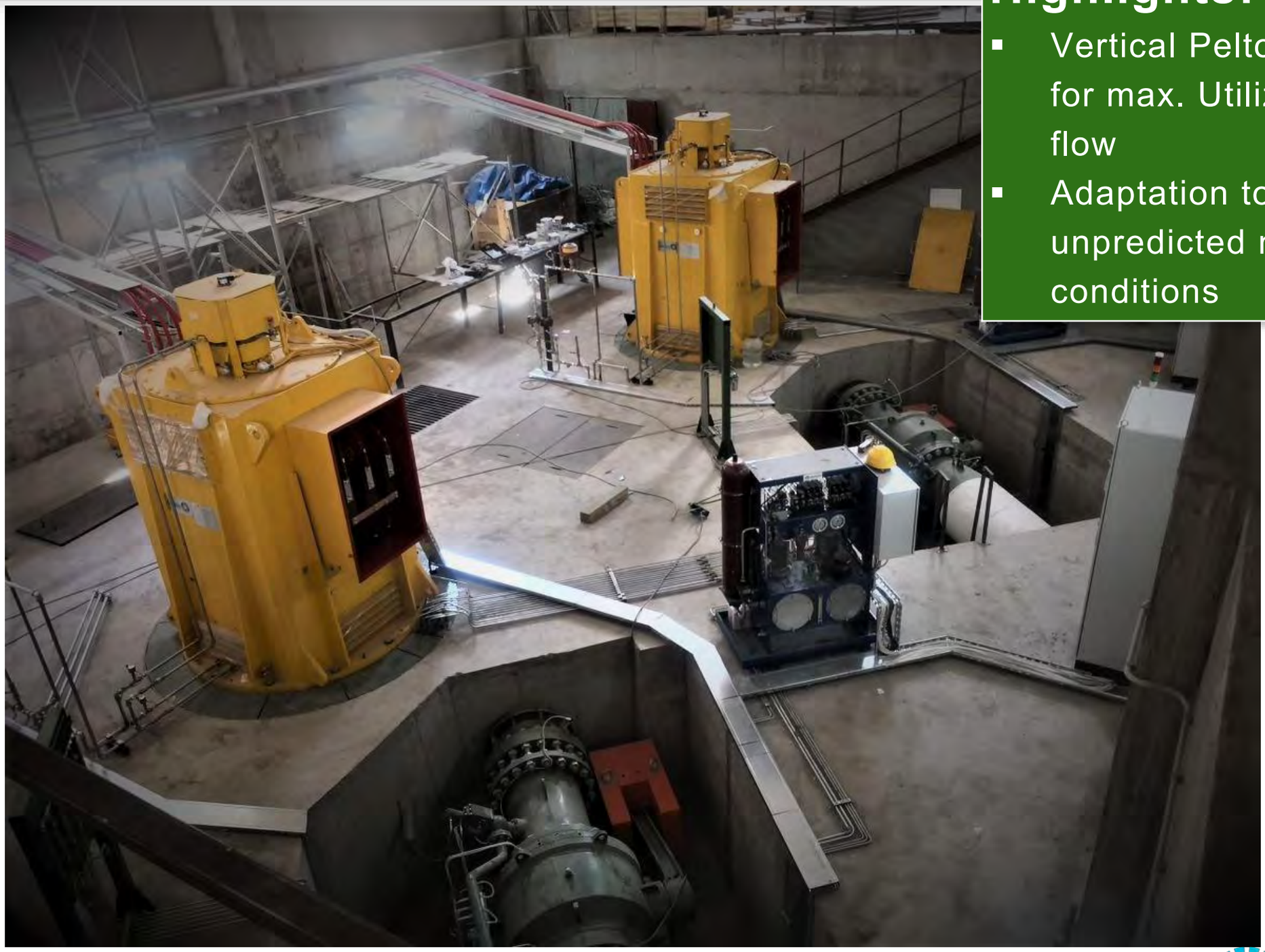

Highlights:

- Vertical Pelton with 6 jets for max. Utilization of the flow
- Adaptation towards unpredicted natural conditions

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Production process

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Highlights:

Rehabilitation

Butterfly Biplane valve DN2400PN6

- Customized design for the valve
- Fluid simulations of the valve in relation to the flow perfromence
- Customized automation system for the valves synchronized with the exisiting system on the plant

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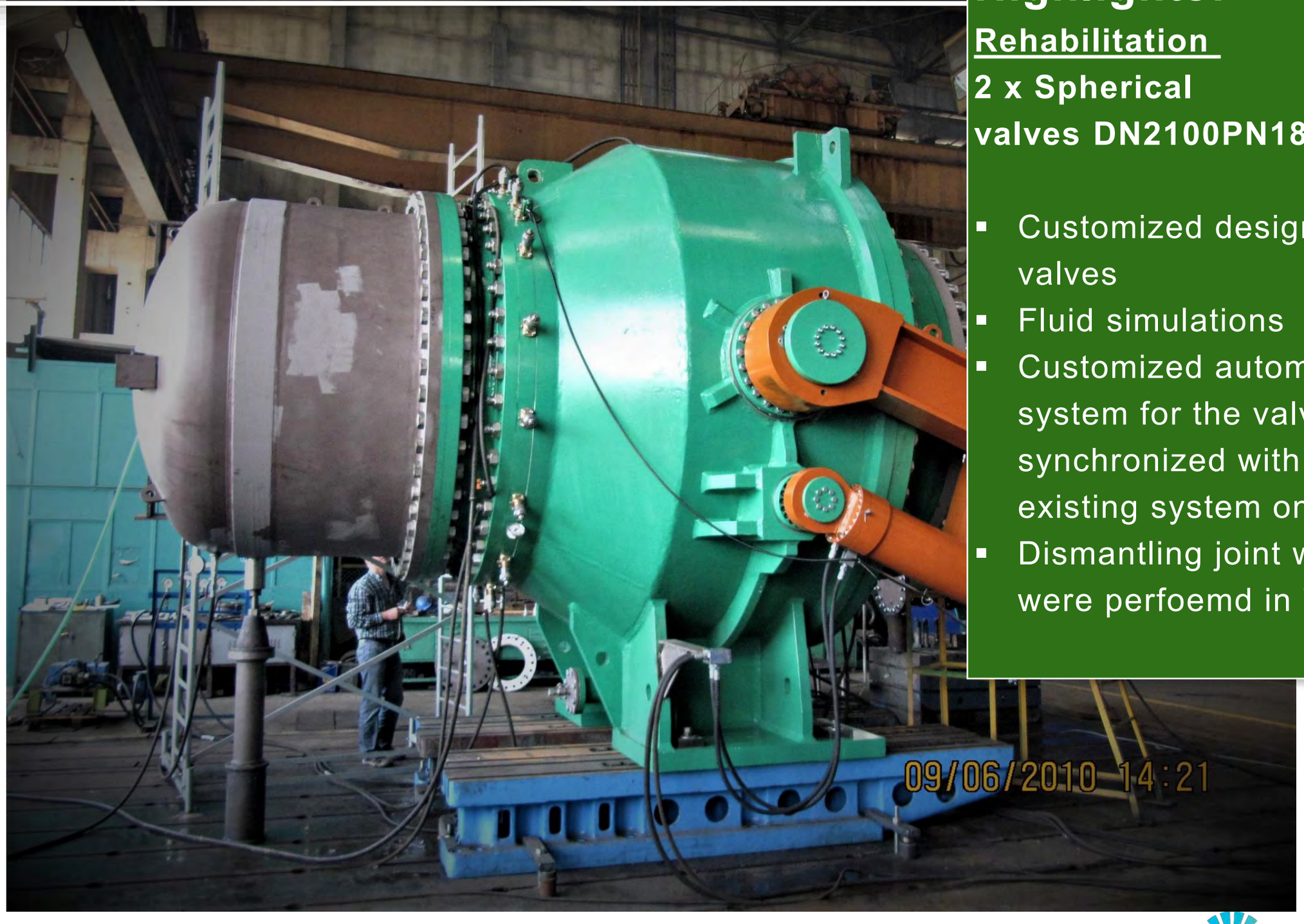

Highlights:

Rehabilitation

2 x Spherical valves DN2100PN18

- Customized design for the valves
- Fluid simulations
- Customized automation system for the valves synchronized with the existing system on the plant
- Dismantling joint works were perfoemd in Tbilisi

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Highlights:

Repairs

Capacity: 270 MW x 5

Scope of supply: Repair of upper turbine cover of unit 1

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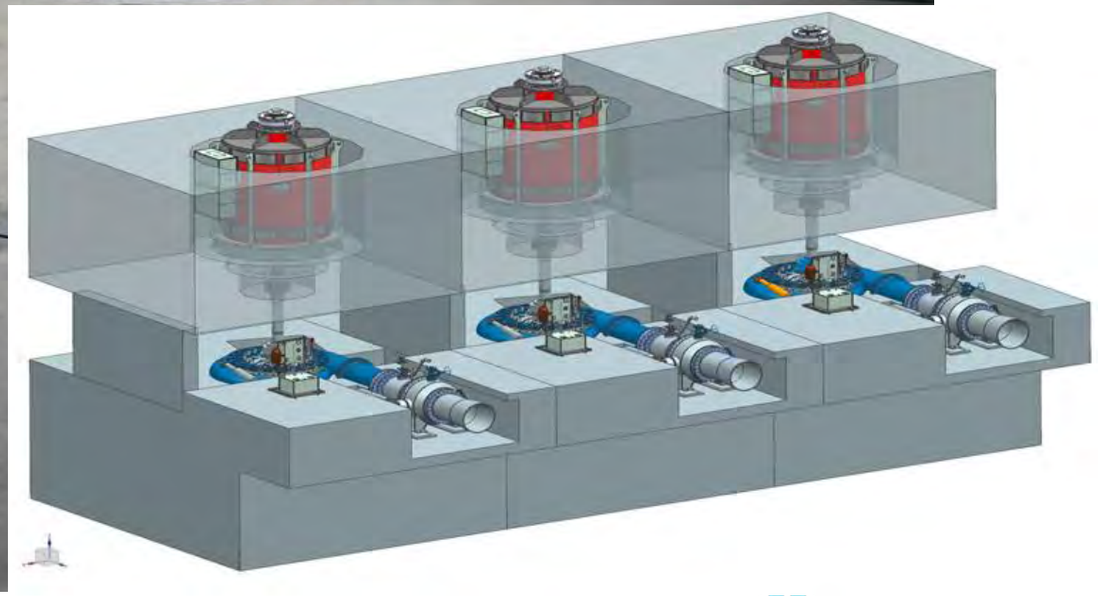
Highlights:

- Full complex rehabilitation and overhaul
- Increase of efficiency and installed power for each turbine with approximately 5 %



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THANK YOU FOR YOUR ATTENTION

Q&A

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