

Media Release

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HYDRO 2018: Voith and Siemens join efforts in establishing hybrid power concepts

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- **Hybrid power approaches are becoming increasingly important for the generation and storage of clean, renewable energy**
- **The Voith Hydro Holding GmbH & Co. KG and the Siemens Energy Management Division sign Letter of Intent for collaboration in appropriate hybrid power projects containing hydropower**
- **Starting point of the collaboration will be the integration of hydropower into Siemens' power simulation system**

GDANSK, Poland. During Europe's largest hydropower industry event, the Division Hydro of Voith and the Siemens Energy Management Division announced their cooperation to drive forward hybrid power concepts including hydropower.

The motto of this year's HYDRO 2018 conference and exhibition could not have been better: Progress through partnerships. The well-known hydropower event was the 25th in organizer Aqua Media's series of events hosted in Europe, and once again was one of the most international gatherings of the year. Voith showcased and exhibited its latest technology, products, and services. Voith employees also enriched the conference program as keynote speakers. In total, visitors from around 80 countries participated, exchanging experience on current challenges and recent achievements.

One such achievement is the innovative collaboration of Voith and Siemens, which intend to broaden their relationship by defining potential forms of collaboration for appropriate hybrid power projects containing hydropower.

Hydropower plays a key role in sustainable and environmentally friendly power generation and is the leading renewable source of electricity

generation globally. Worldwide it makes an indispensable contribution to a stable power supply and thus to economic and social development – both in industrialized countries and in regions seeing strong growth.

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As energy consumption is rapidly increasing, it is becoming harder to keep energy production and consumption in balance at all times. As multi-functional power plants, pumped storage facilities have a high potential to meet this challenge as their technology is based on the only long-term, technically proven, and cost-effective form of storing energy on a large scale. Combining wind mills and/or solar farms with a pumped storage plant ensures that the energy generated is immediately and reliably stored when it cannot be directly fed into the power grid. Such hybrid power approaches are becoming increasingly important given that the shift from centralized to decentralized power systems remains an ongoing mega trend globally.

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Since the early days of hydropower exploitation, Voith has been a leading supplier of this technology and is constantly refining and improving it. With the combination of this extensive hydropower expertise and Siemens' know-how related to various energy generation, storage, and distribution systems, both companies are committed to driving forward the idea and conceptualization of hybrid power approaches. Siemens is a minority shareholder in the Division Hydro of Voith (Voith Siemens Hydro Power Generation GmbH & Co. KG), the long-standing joint venture between Siemens AG and Voith Hydro Holding GmbH & Co. KG.

The starting point of the extended collaboration will be the integration of hydropower in one of Siemens' power system simulation software tools. The Siemens software tool landscape provides power system planners and operators with solutions for simulating, analyzing, modeling, and creating digital twins of transmission, distribution and industrial power systems. In a first step, both companies will focus on an integrated approach to evaluate the technical feasibility of hybrid concepts containing hydropower, taking into account economic expectations. In this way they will support decision makers and ensure profitable business development based on technical as well as economical simulations and iterative optimizations using various power generation sources and energy storage options (such as hydropower, wind, solar, battery storage).

Markus Rieck, Chief Sales Officer (CSO) of the Division Hydro of Voith, said: "Accurate and efficient power system analysis that considers technical, regulatory and economic industry requirements as well as

security of supply is essential for the utilities of the future and all independent power producers. We are looking forward to contributing our hydropower expertise.”

Dr. Gerrit Lange, Sales Director for Power OEMs and Renewables at the Siemens Energy Management Division, complements: “Adding specific forms of hydropower as a renewable source of energy and storage option to our simulation ecosystem will be very beneficial for our customers because we thereby reflect an even larger portfolio. This will be another step on our way to provide comprehensive solutions for the growing needs of hybrid power applications for distributed energy systems.”

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About Siemens

Siemens AG (Berlin and Munich) is a global technology powerhouse that has stood for engineering excellence, innovation, quality, reliability and internationality for 170 years. The company is active around the globe, focusing on the areas of electrification, automation and digitalization. One of the world's largest producers of energy-efficient, resource-saving technologies, Siemens is a leading supplier of efficient power generation and power transmission solutions and a pioneer in infrastructure solutions as well as automation, drive and software solutions for industry. With its publicly listed subsidiary Siemens Healthineers AG, the company is also a leading provider of medical imaging equipment – such as computed tomography and magnetic resonance imaging systems – and a leader in laboratory diagnostics as well as clinical IT. In fiscal 2017, which ended on September 30, 2017, Siemens generated revenue of €83.0 billion and net income of €6.2 billion. At the end of September 2017, the company had around 377,000 employees worldwide. Further information is available on the Internet at www.siemens.com.

About the Voith Group

The Voith Group is a global technology company. With its broad portfolio of systems, products, services and digital applications, the Voith Group sets standards in the markets of energy, oil & gas, paper, raw materials and transport & automotive. Founded in 1867, the company today has more than 19,000 employees, sales of € 4.2 billion and locations in over 60 countries worldwide and is thus one of the largest family-owned companies in Europe.

The Division Hydro is part of the Voith Group and is a leading full-line supplier and trusted partner for equipping hydropower plants. Hydro develops customized, long-term solutions and services for large and small

hydro plants all over the world. Its portfolio of products and services covers the entire life cycle and all major components for large and small hydro plants, from generators, turbines, pumps and automation systems, right through to spare parts, maintenance and training services, and digital solutions for intelligent hydropower.

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Caption: *Markus Rieck, CSO of the Division Hydro of Voith, and Dr. Gerrit Lange, Sales Director at Siemens Energy Management Division, confirm partnership in Gdansk, Poland.*

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