

3. MECHANICAL AND ELECTRICAL

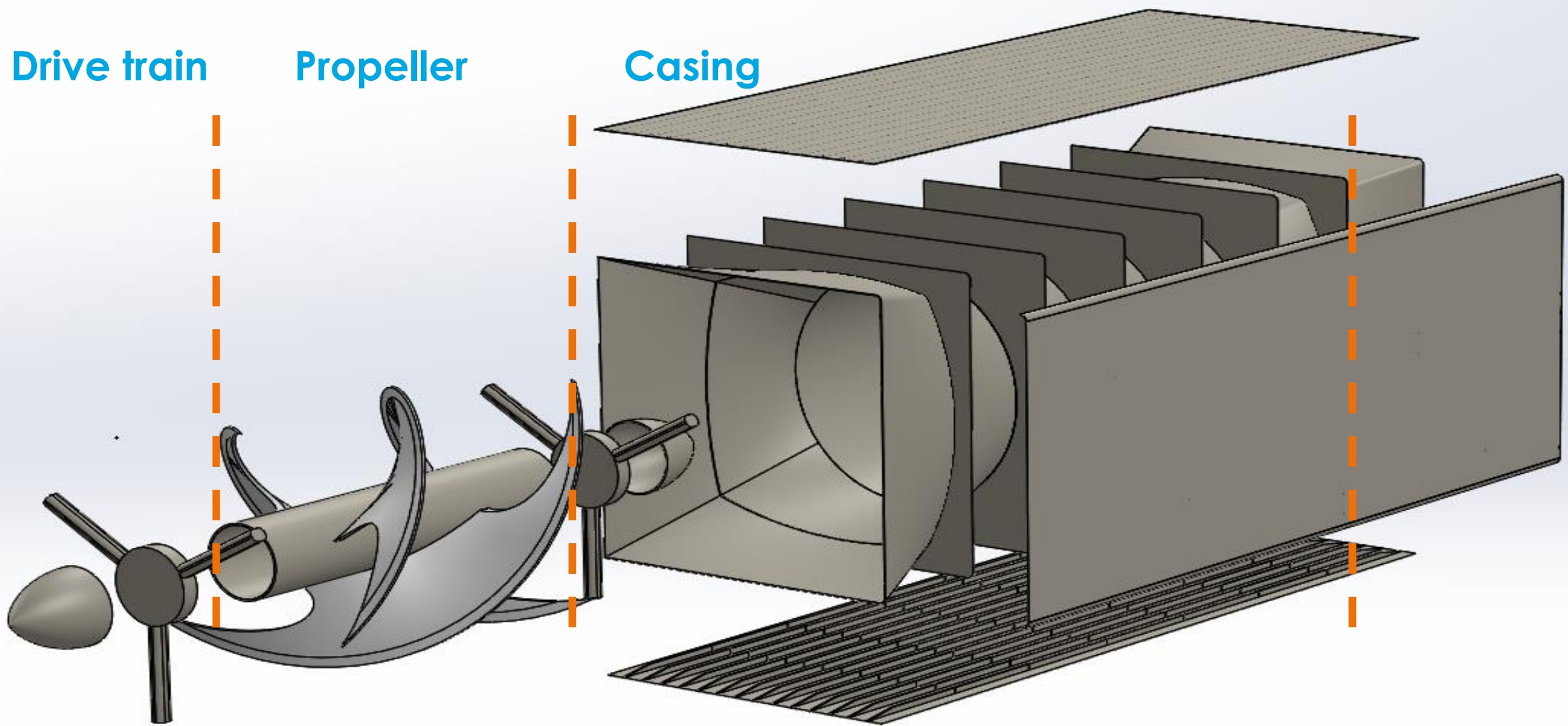
ITS remarks

In DD report ITS made reasonable remarks on mechanical and electrical elements. The most important were:

- Choice of turbines didn't reflect the highest TRL in market
- Uncertainty about the power capacity installed

Since 2017 developments have continued to a secure proposition...

Exploded view of structure used



Choice of turbines

Choice of turbines doesn't reflect the highest TRL in market

We established a collaboration between Andritz and Fishflow...

The turbines in the bridge are based on operational Andritz 1,5 MW technology together with a FishFlow propeller used in commercial applications

- Andritz is active since 2003 with operational tidal turbines mainly in Scotland
- The propeller of FishFlow have been used since 2010 in various applications

The combination keeps form and shape intact with reference trackrecord...

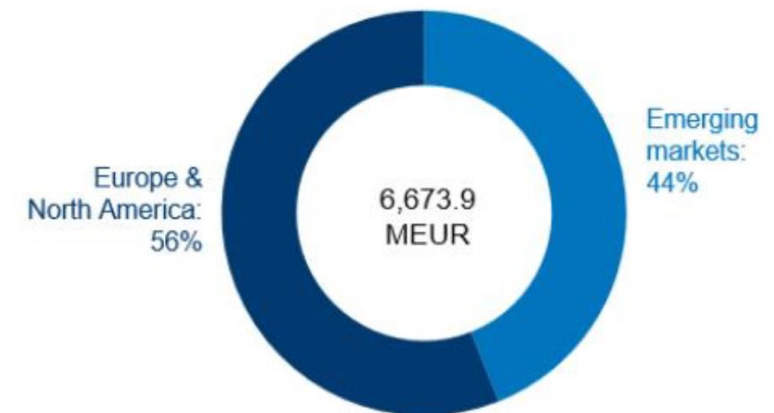
ANDRITZ is a global leading supplier of plant, equipment, systems and services for the hydropower, pulp and paper, metalwork, steel, solid / liquid separation in municipal and industrial sectors as well as for animal feed and biomass pelleting.

Headquartered in Graz, Austria with over 280 production sites and service / sales companies worldwide.

KEY FINANCIAL FIGURES:

| | UNIT | 2019 | 2018 |
|------------------------------------------------------|------|---------|---------|
| Order intake | MEUR | 7,282.0 | 6,646.2 |
| Order backlog (as of end of period) | MEUR | 7,777.6 | 7,084.3 |
| Sales | MEUR | 6,673.9 | 6,031.5 |
| Net income (including non-controlling interests) | MEUR | 122.8 | 219.7 |
| Employees (as of end of period; without apprentices) | - | 29,513 | 29,096 |

SALES BY REGION 2019 (%)



ANDRITZ TIDAL

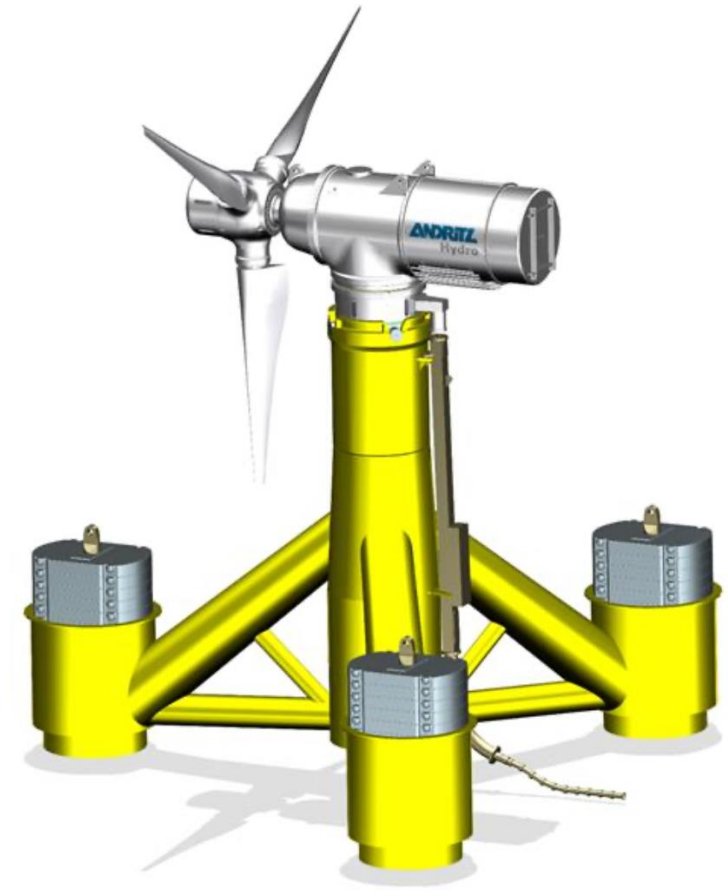
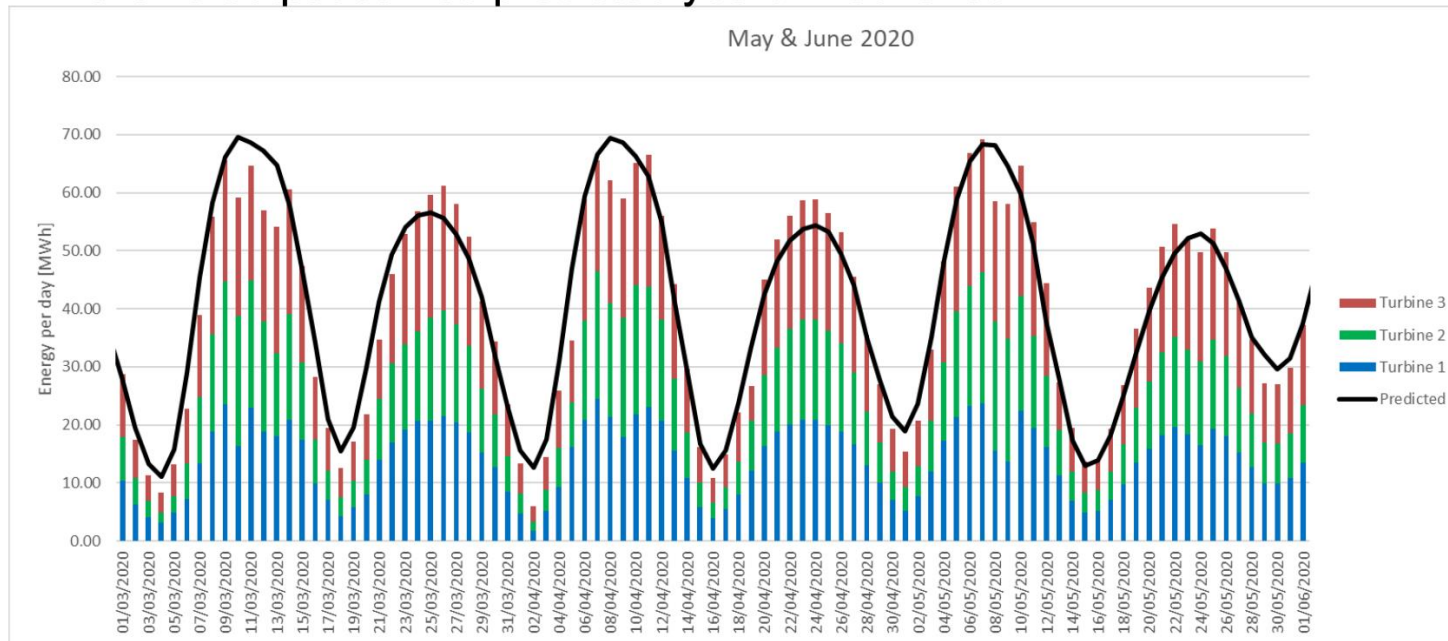
Tidal Barrage and Lagoons

- ANDRITZ Hydro supplied the electro-mechanical equipment or has been involved in renovation of the following tidal projects;
 - Sihva Lake (260MW South Korea)
 - La Rance (240MW France)
 - Annapolis Royal (20MW Nova Scotia)
- ANDRITZ was also nominated as preferred supplier for Swansea Bay Tidal Lagoon



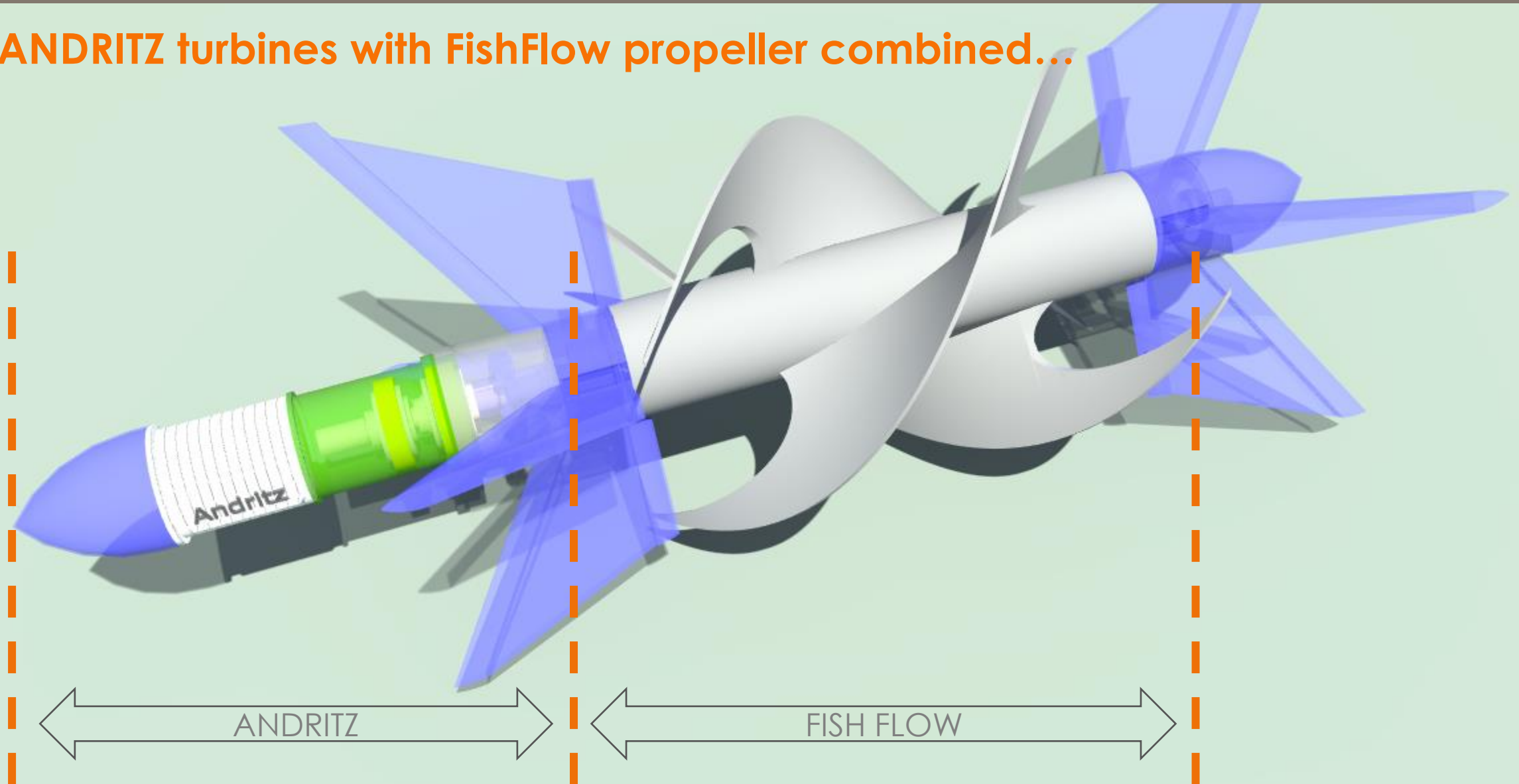
Instream Tidal

- ANDRITZ delivered 3x 1.5MW turbines to the world's first utility scale instream tidal array (MeyGen in Scotland).
- ANDRITZ instream tidal turbines have generated more than 35GWh to date (the MeyGen turbines generate around 5GWh per turbine per year).
- Turbine output can be predicted years in advance.

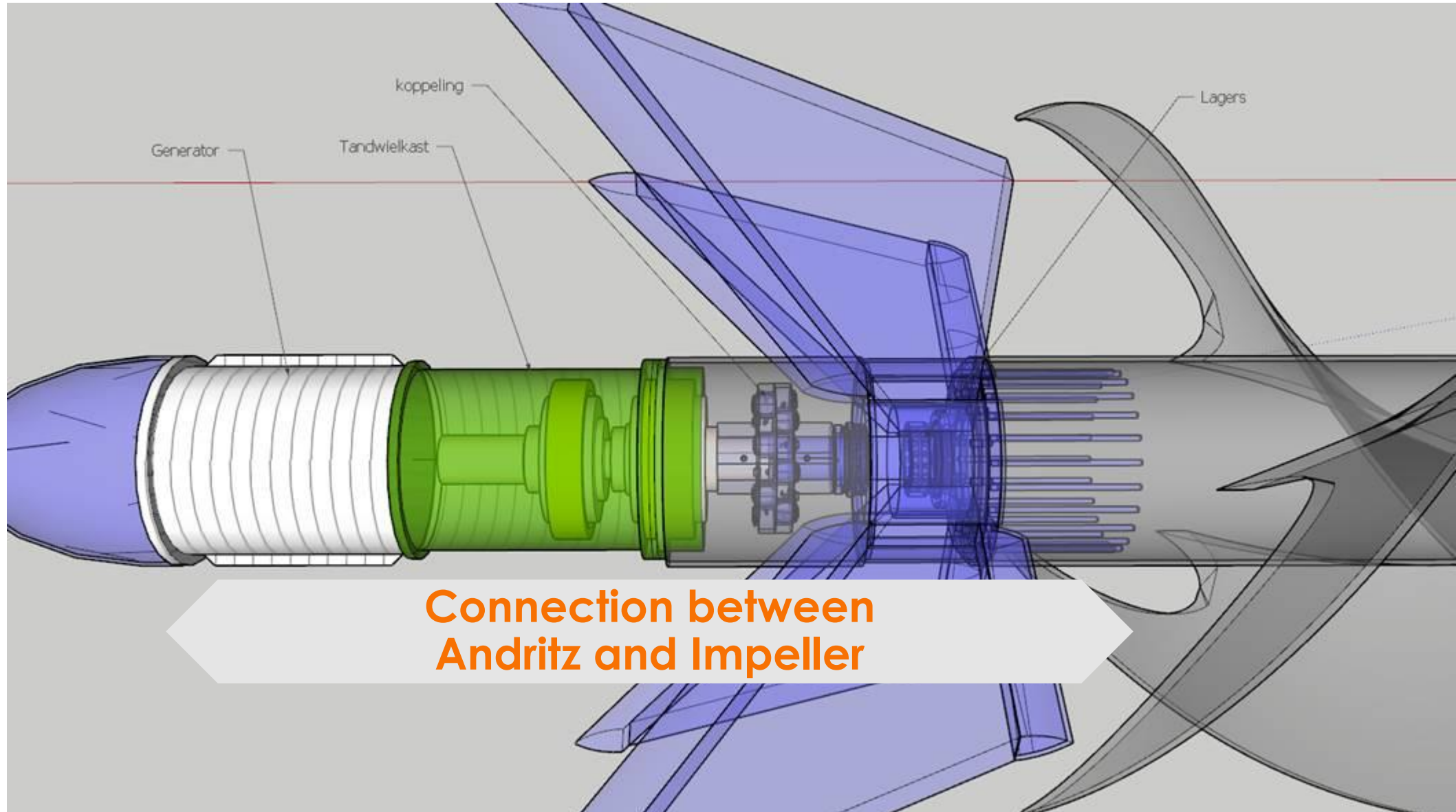


Choice of turbines

ANDRITZ turbines with FishFlow propeller combined...



Choice of turbines: Andritz



Choice of turbines: Andritz

Use of ANDRITZ turbine MK2

- Delivers 1,5 MW drive train, gearbox, generator electronics and software
- Tidal experience > 15 years
 - MK1 turbine operational since 2017
 - HS1000 operational from 2011-2014
 - HS 300 from 2003-2010
- Contributing their experience to project



Choice of turbines: Andritz

Use of ANDRITZ turbine MK2



Simpler version of the MK2 version which is currently active in Scotland

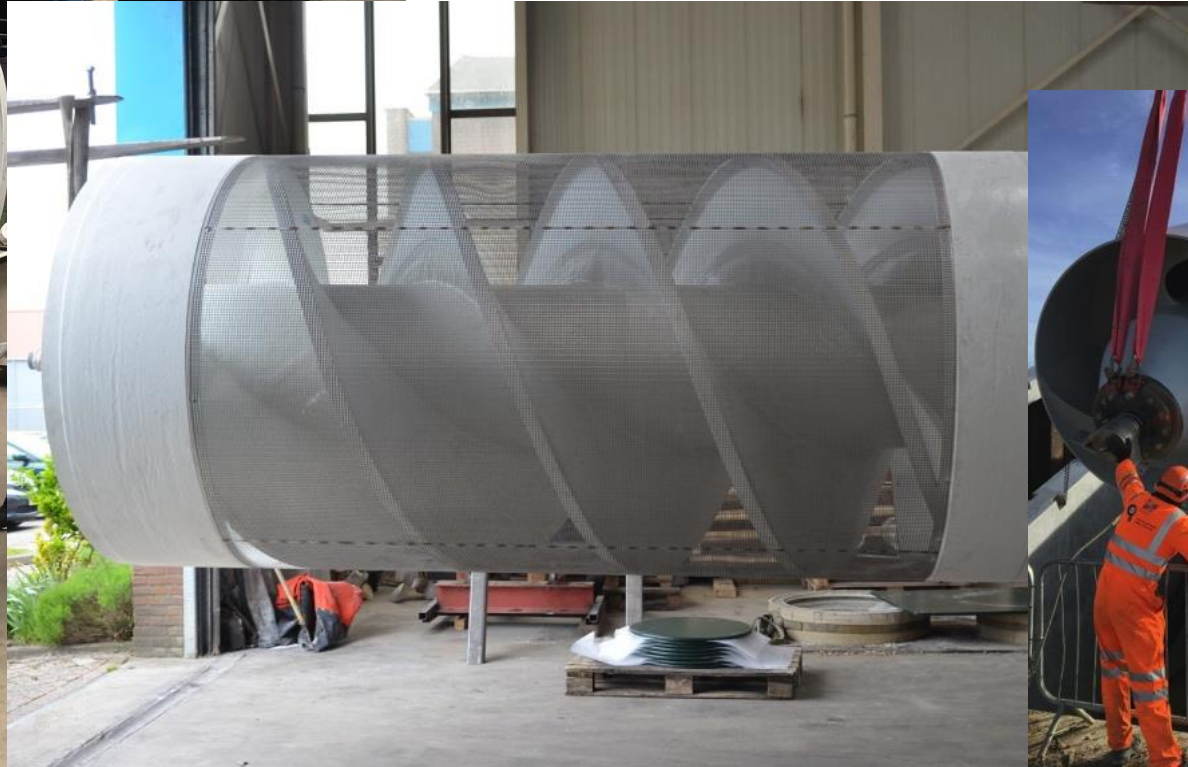
- “One on one” application of gearbox, generator and electronics
- Leaving out Pitch steering and control, 3D bearings, Sealing, Brakes, Housing and Tripod

...Reducing risk and maintenance considerably...

Choice of turbines: Fish Flow

FishFlow impellers used in many applications

- Pumps, augers, propellers for ships, turbines
- 100% fish friendly [key item in meetings with NGO and Greenpeace](#)
- No cavitation and no noise
- Long lifetime



Choice of turbines: FishFlow

Technology implemented on critical sites in Europe...

- Controlling water heights
- Increasing water flows
- Maintaining cooling
 - nuclear installations in UK and France
 - data centers Google, Microsoft
- Screws on submarines

...With more than 10 years successful experience...

| Description | Diameter | City | Country | Client | Year |
|---------------------------------|----------|---------------------|----------------|-------------------------------------------------|-----------|
| Gemaal Zwanburgerpolder | 1.000 | Warmond | Netherlands | Hoogheemraadschap van Rijnland | 2008 |
| Gemaal Hollands Ankeveen | 2.000 | Ankeveen | Netherlands | - | 2009 |
| Gemaal Hoekpolder | 1.600 | Den Haag / Rijswijk | Netherlands | Hoogheemraadschap van Delfland | 2009 |
| Gemaal de Scheen | 1.000 | Joure | Netherlands | Aann.bedrijf J.J. de Vries | 2011 |
| Gemaal Haagse Bos | 1.000 | Den Haag | Netherlands | Gebr. Schouls BV | 2011 |
| Gemaal Halfweg | 1.400 | Halfweg | Netherlands | EWV Technische bedrijven BV | 2012 |
| Vijzels Kortenhoeft | 2.000 | Nederhorst den Berg | Netherlands | Waternet | 2013 |
| Vijzel Koopmanspolder | 1.000 | Wervershoof | Netherlands | Dienst Landelijk Gebied (N.H.) | 2013 |
| Auger pump gemaal Stroink | 1.400 | Blokzijl | Netherlands | Waterschap Reest en Wieden | 2014 |
| Screw pump at Thorne Moors | 1.200 | Yorkshire | United Kingdom | Aquatic Control Engineering Ltd. | 2017 |
| Screw pumps at Bells & Mocketts | 2.500 | Isle of Sheppey | United Kingdom | Aquatic Control Engineering Ltd. | 2018 |
| Nieuwbouw PGM Weerdijk | 1.200 | Weerdijk | Netherlands | Waterschap Hunze en Aa's | 2020 |
| Pompveld Andelsch Broek | 800 | Andel | Netherlands | Waterschap Rivierenland | 2020 |
| Drijvende vijzel CNEPE Penly | 600 | Penly | France | EDF CNEPE | 2020 |
| Zalmkwekerij | 500 | Surnadal | Norway | Oxyvision AS | 2020 |
| Koelwatervijzel Hinkley Point C | 2.000 | Hinkley Point C | United Kingdom | EDF / Ovivo / Aquatic Control Engineering Ltd. | 2020 |
| Mangawhero Pumping Station | 1.600 | Aka Aka | Nieuw-Zeeland | Waikato Regional Council | 2021 |
| Pumpwerk 1 | 800 | Ueterlande | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 2 | 800 | Overwarferfeld | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 3 | 1.400 | Dedesdorf | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 4 | 1.200 | Dedesdorf | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 5 | 1.600 | Lüne-Drepte | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 6 | 1.600 | Rechenfleth | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 7 | 1.200 | Sandstedt | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 8 | 800 | Offenwarden | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 9 | 800 | Offenwarden | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Pumpwerk 10 | 800 | Dedesdorf | Germany | Wasserstraßen- und Schifffahrtsverwaltung (WSV) | 2021 |
| Gemaal Middelblok | 2.000 | Gouderak | Netherlands | Hoogheemraadschap Schieland en Krimpenerwaard | 2021 |
| Benacre | 4.000 | Benacre | United Kingdom | Aquatic Control Engineering Ltd. | 2021/2022 |
| North Kyme Booster PS | 2.000 | North Kyme | United Kingdom | Aquatic Control Engineering Ltd. | 2021/2022 |
| Wiseton | 3.000 | Wiseton | United Kingdom | Aquatic Control Engineering Ltd. | 2021/2022 |
| Park Drain | 2.500 | Spalding | United Kingdom | Aquatic Control Engineering Ltd. | 2021/2022 |
| Norton Pumping Station | 2.000 | Norton | United Kingdom | Aquatic Control Engineering Ltd. | 2022/2023 |
| Kirton Lane | 1.200 | Thorne | United Kingdom | Aquatic Control Engineering Ltd. | 2022/2023 |

The housing and casing are integral parts of the structure and performance

