

# PECMAG

POWER ELECTRONIC CONTROLLED MAGNETIC GEAR

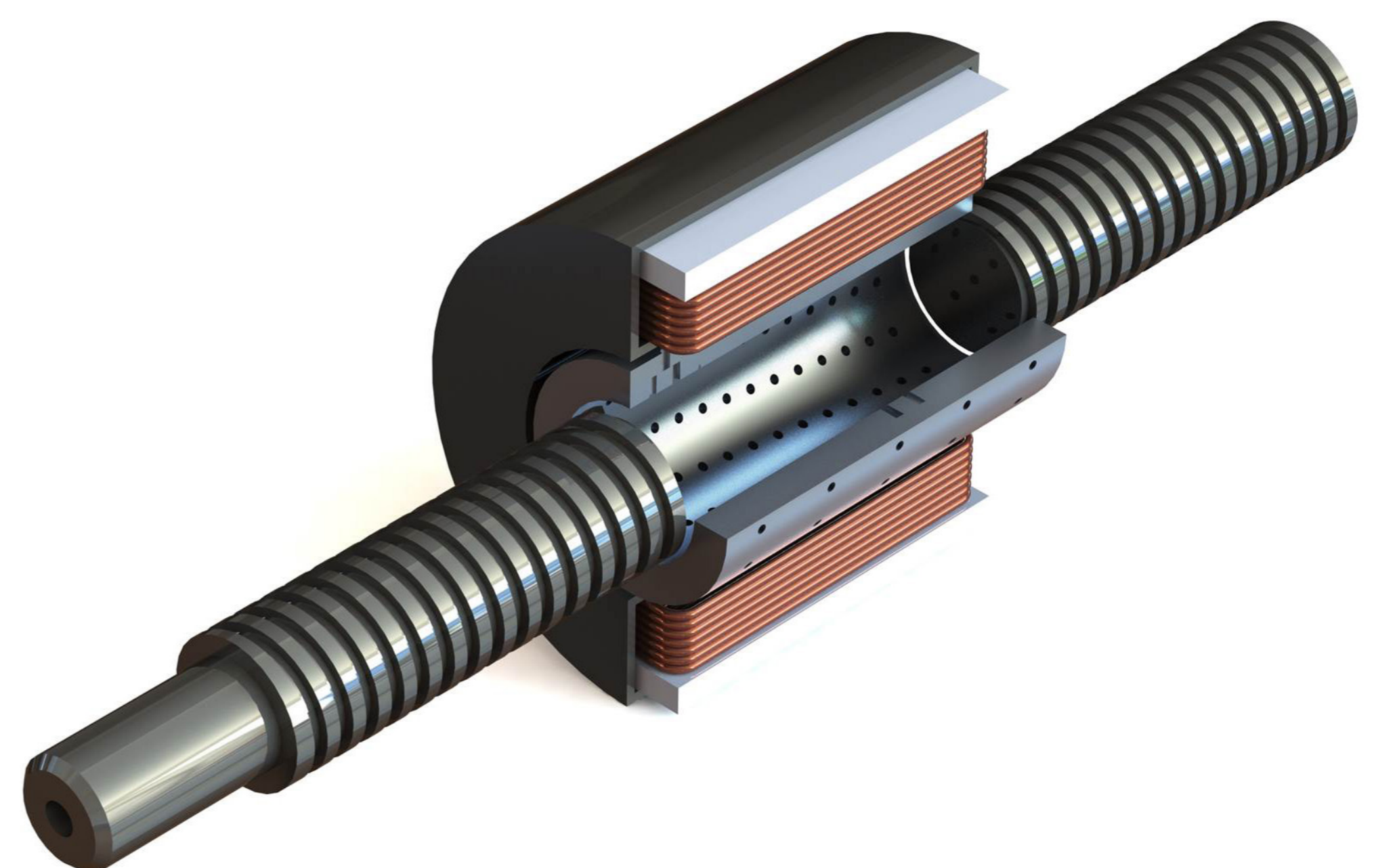


## Introduction

The PECMAG PTO is a modular all-electric system comprising a magnetic gear and permanent magnet generator coupled to an integrated electronic rectifier and control system. PECMAG is being developed to suit a variety of WEC devices with both linear and rotary options available.

### PECMAG offers the following benefits:

- » **Integrated System**  
Gear, generator, power electronics and control system developed as single compelling package
- » **Improved Survivability**  
Non-contact design offers damage free slippage in extreme sea states
- » **Leading Efficiency**  
Gear enhanced by highly configurable power system to maximise capture efficiency
- » **Increased Availability**  
Redundant configurations to enable degraded system operation



### The Stage 3 project addresses the key risks associated with PTO development by:

#### Advanced R&D: Improve performance and scalability

- » Refined generator and gear component design and manufacture
- » Segmented assembly simplifying repair and maintenance
- » Modular power sharing and degraded performance optimisation
- » Novel magnetic gear control algorithms

#### Sea Trials: Increase TRL and reduce investor risk

- » Deliver a PTO that can physically and operationally integrate into a WEC system
- » Validate marinisation approach
- » Demonstrate key slip and power capture features
- » Allow reliability and availability metrics to be quantified

#### Subcontractors

Bathwick Electrical Design  
Supply Design  
Pure Marine Gen

