**Investment Opportunity:**

Hydrogen & Multi-fuel Engines for Sustainable Power & Mobility
WST at a Glance

- **Existing fields of business:**
  - Light Aircraft & Drones
  - Power Generation
  - Marine

- **New field of business:**
  - Hydrogen engines & dual-fuel range extenders for electric vehicles

- Wankel SuperTec GmbH („WST“) is specialized in the development of advanced rotary engines

- Established some 20 years ago out of Cottbus Technical University, it is technology leader in its field

- WST is the only company producing rotary engines that can run on Diesel fuel

- Combines attractive, scalable existing business with high growth potential in clean mobility

- New business model and successful restructuring after change of management in mid-2018:

  ➔ From research institute towards industrial company
Main Features
▪ With rotary engines at the core
▪ Driven by hydrogen
▪ But also able to run on conventional fuels

Main Advantages
Over pure battery cars:
▪ Allows reduction of battery size & costs
▪ No rare materials needed
▪ No dependency on charging stations, no long charging stops, no use of conventional electricity

Over fuel cell cars:
▪ Does not depend on supply of hydrogen
▪ No rare materials needed
▪ Easy & cheap to produce and repair
▪ long life-time

Over conventional engines & range extenders:
▪ Pollution-free if run on hydrogen
▪ Small, light, low vibrations

Above: WST range extender prototype

One car - 3 sources of power
Existing Fields of Business:
Light, Small and Low-vibration, High-power Diesel Engines

Wherever excellent power-to-weight ratio, low vibrations and operation with Diesel fuel are important - examples:

- **Light aircraft & Drones**
  - Equator Aircraft‘s hybrid amphibious airplane, powered by WST KKM 352 Diesel engine (picture courtesy of Equator Airplane Ltd.)

- **Power generation equipment II**
  - Deutsche Bahn, Germany‘s railway company, has since 2015 equipped a total of 60 Diesel lokomotives with our auxiliary power systems, using WST KKM 351 Diesel engine

- **Power generation equipment I**
  - compact and lightweight 30 kVA power generation unit, equipped with KKM 501 Diesel engine

- **Marine**
  - small & light C-Fury RIB powered by WST KKM 352 Diesel engine (picture courtesy C-Fury Ltd.)
Special Features of WST Rotary Engines - Multi-fuel Capabilities

- **FOSSILE**
  - Liquid: diesel, kerosine, gasoline, methanol
  - Gaseous: natural gas, LPG

- **ALTERNATIVE**
  - Liquid: biodiesel, plant oil, ethanol
  - Gaseous: hydrogen, biogas
Existing Engine Series

Weight to power ratios of WST‘s KKM 350 and KKM 500 series engines

All WST-engines feature

- high reliability
- excellent power to weight ratio
- low vibrations
- multi-fuel capability
- modular design
- WST‘s own ECU (hardware and software)
- patented sealing and lubrication designs
- increased efficiency and reduced exhaust through proprietary fuel injection and ignition technology

(power output for use with conventional fuels)
To accelerate our company’s continued growth and development, we are looking for investment of

500,000 to 1,000,000 EUR against 5% to 10% of the shares in WST

Key figures:

- Total spent on R&D so far:
  - 12+ Mio EUR

- Financing received until 2019 (investment & shareholder loans):
  - 3 Mio EUR

- Existing assets:
  - complete engine technology
  - testing and assembly equipment

- Existing debt:
  - 0.3 Mio EUR to third parties
  - 0.5 Mio EUR to shareholders
Timeline

- Business development hydrogen engines & dual-fuel range extenders:
  - Development of hydrogen engine
    - First successful test run Sept 20, 2019
  - Production of fully-functioning range extender prototypes
  - Low volume production for first commercial applications
  - Start of series production
  - Expansion of series production

- In parallel, WST will continue and grow its existing business:
  - Rotary engines fueled with Diesel and other conventional fuels
  - in the fields of drones, small airplanes, railroad, power generation and boats/yachting
  - For existing and new customers
**Usage of Investment & Shareholders**

**Intended Usage of Investment:**
- 20%: Operating capital for continued growth of sales
- 50%: Further development of hydrogen engines & dual-fuel range extender systems
- 10%: Reduction of debt
- 20%: Purchase of production equipment

**Further near-future financing likely through**
- public subsidies (applications under preparation)
- suppliers of production equipment (readily arranged)

**Shareholders:**
- WST is independent, privately-owned company
- Shareholders are:
  - Founding family
  - 1 private investor
  - Share options for general manager
- Share distribution to be adjusted in line with business development

**Exit possibilities:**
- Preferred:
  - Public listing ca. 2025
- Alternatives:
  - Sale to strategic investor
  - Sale to private equity fund
Market Size: Ample Room for Growth (selected segments)

Annual Electric Vehicles Sales 2018-2030

Annual growth rates of Light Aircraft & Payload Drone Markets amount 5.8 and 17 percent respectively. Both markets combined will reach size of approx. USD 21 Billion by 2023.

Source: Markets & Markets

Light Aircraft & Payload Drone Markets Growth 2017-2023

Micro CHP Market Growth 2017-2023

Micro CHP Market is expected to post a CAGR of up to 23% during the period 2017-2023 surpassing USD 13 Billion by 2024.

Source: Technavio, Global Market Insights

Marine Outboard Engines Market Growth 2017-2023

The global Marine Outboard Engines Market adds around 5 percent every year, which will make it approx USD 50 Billion worth by 2023.

Source: Technavio
Ways to Market
2 successfully applied approaches

1. Engine sales to system integrators
   - Successfully applied for drones & aircraft, marine and power generation
   - Intended also for sale of range extender systems to automotive OEM’s, particularly younger manufacturers of electric vehicles
   - Long-lasting partnerships with customers who build their products around our engines
   - Leads to growing sales as customers develop their business

2. Sourcing of system components, equipment with engines and sale to end-users
   - Successfully applied for power generation equipment sales to Deutsche Bahn
   - Intended for increase of sales of power generation equipment
   - Provides second, more pro-active sale of dual-fuel range extender systems
     - Sourcing of suitable electric vehicles from strategic partners
     - Equipment of these vehicles with dual-fuel range extender system
     - Sale of complete vehicles to end users
WST Team

General Manager - Dr. Holger Hanisch
- GM of WST since July 2018
- born 1968, married, 3 children
- lawyer, DAAD alumni, studied in Germany, USA, China
- 15+ years of managerial experience
- Spent 14 years in China
- Own consulting company, own office in China

Finance, Sales & Admin
- Head of Finance, one part time employee
- Administration & Sales, one full time employee
- Marketing, one part time employee

R&D
- **Head of R&D**, PhD in mechanical engineering, 30+ years of experience in developing rotary engines
- **Engineer**, master in mechanical engineering, 13 years of experience in developing rotary engines
- **Technician**, 8 years of experience in developing rotary engines
- **Engineer**, master in mechanical engineering, PhD student writing thesis on rotary engines (part time)

External Consultants
- **Engineer**, master in mechanical engineering, 50+ years of experience in developing rotary engines; formerly chief engineer and general manager at original Wankel Institute of Mr. Felix Wankel (inventor of the rotary engine)
- **Engineer**, PhD in physics, co-developer of ECU on behalf of WST

Production
- **Trained mechanic**, 5 years of experience in production, repair and maintenance of rotary engines
- **Trained mechanic**
Dr. Holger Hanisch

Wankel SuperTec GmbH
Burger Chaussee 20
D-03044 Cottbus
Germany

holger.hanisch@wankelsupertec.de
www.wankelsupertec.de