



# Proton Power Systems PLC

Investor Presentation

February 2012



# Board Members






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-  John Wall, Chairman
-  Faiz Francois Nahab Ph.D., Chief Executive Officer
-  Thomas Melczer, Business Development Director
-  Achim Loecher, Group Financial Director
-  Helmut Gierse, Non-Executive Director




# Company Structure



Proton Power Systems plc Group

-  Founded in 1998
-  Expert in industrial fuel cells and hybrid systems
-  Development started 1994
-  50 employees ( > 50 % in Engineering )
-  Based near Munich, Germany



-  Holding Company, founded 2006
-  Listed on AIM, October 2006
-  100% owner of Proton Motor Fuel Cell GmbH

# Available Products and Solutions

## FC Stacks



Development and manufacturing of fuel cell stacks with power range from 2,5 to 20kW for mobile and stationary applications.

## Systems



Development and manufacturing of fuel cell systems (for example APU's for stationary power) with 5kW / 20kW / 50kW / 100kW and more.

## Applications



Range Extender and battery as Hybrid Drive systems for light duty vehicles and buses. Current battery solution up to 80kWh, Hybrid Drive up to 240kWh.



Triple Hybrid <sup>®</sup> Drive concept with power range from 50 to 100kW consisting of fuel cell system, li-ion batteries and super capacitors.



Hybrid drive systems and power supply for ships and harbors up to 200kW.

Development

Engineering

Integration

Implementation

Service

# Market Size

Europe	Annual Production	Fuel cell applicability (2013-20) Average	Application Volume (2013-20) Accumulated	Power/Unit Average	Potential addressable market <sup>1)</sup> (2013-20) Accumulated
	Units	%	Units	kW	€ million
LD Vehicles <sup>2)</sup> & Buses	170.000	5,0%	68.000	12	408
UPS/APU <sup>3)</sup>	70.000	4,0%	22.400	25	280
Vessels <sup>4)</sup>	125	5,0%	50	150	23
<b>Total</b>	<b>240.125</b>	<b>4,7%</b>	<b>90.450</b>		<b>711</b>

<sup>1)</sup> 500€/kW for System (LDV & UPS)

<sup>2)</sup> 1.000 to 4.000 kg payload

<sup>3)</sup> 25 kW average

<sup>4)</sup> 50-200 kW with 3.000 €/kW hybrid system

**Accumulated addressable Market until 2020**

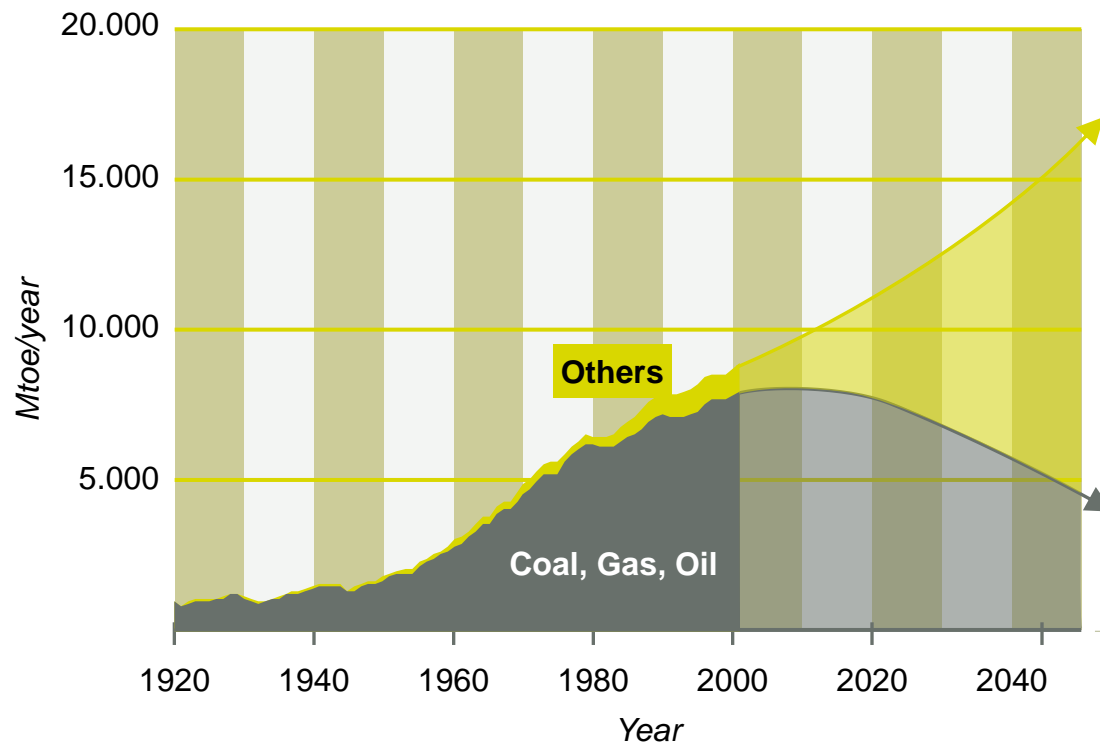
**Europe 711 M€**

**Worldwide 2'100 M€**

Source: Estimates of the Company and Equity Development from February 2012.  
LDV: ACEA and German Kraftfahrt Bundesamt. Marine application volume and average power/unit are the Company's own market research.

# Need For Clean Energy

## Total primary energy supply



Development implied by economic growth (e.g. IEA)

PM focus: zero emission products to close the gap

Emission reduction necessary to mitigate climate change (e.g. IPCC)

Source: Estimates of the Company

# Market Drivers



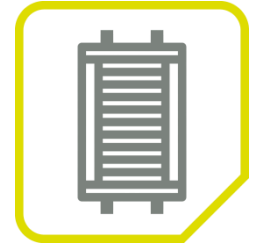
Four Megatrends drive  
the global market:

1. Urbanization
2. Mobility
3. Telecom/IT
4. Climate Protection

We have solutions for all  
those markets

# Company Expertise

- Stack and System IP
- More than 50 % of Headcount in Engineering
- Expert in Industrial Fuel Cells and Hybrid Systems > 14 years
- Main Applications: Stationary-, Mobil- and Maritime Power
- Integration of Battery, Ultra Cap and Fuel Cell → Triple Hybrid <sup>®</sup>
- Established Partnerships with OEMs
  - e.g. Smiths Electric Vehicles, Skoda Electric, Magna
- Established Partnerships with Contract Manufacturers





# 2011 Operational Highlights

- Market introduction of new PM Module S5 and first orders for UPS applications
- Successful integration phase on Range Extender System (REX) within a partnership with Smith Electric Vehicles (SEV) and Magna Steyr
- Very positive discussions with other potential customers to buy the Range Extender system (REX) for buses
- Successful day to day operation of ZEM passenger ship in Hamburg with > 750 hours of operation in 2011
- Negotiations with other ship operators to use our maritime hybrid drive
- Successful day to day operation of Triple Hybrid<sup>®</sup> Bus in Czech Republic
- First very positive test results of new PM 400 stack generation (20kW)
- Organisation further improved and optimized

# 2012 Outlook and Order Pipeline

-  Orders expected in 2012 of new PM Module in the range of 50 units (TEUR 1.250)
-  Presentation of fully integrated Range Extender System into SEV Newton vehicle at the end of February 2012
-  Start to manufacture first of 20 vehicles SEV Newton with REX, funded by German Government NIP program in 2012
-  Presentation of first 12m Bus with Electric Hybrid Battery/REX system with a well known UK Bus manufacturer in the second half 2012
-  Negotiations with other ship operators to use our maritime hybrid drive similar to Alsterwasser in Hamburg
-  Successful development of of new PM 400 stack generation (20kW) until the end of 2012

# Investment Summary

- Unlimited Energy storage via Hydrogen and the permanent availability of Energy via a Hydrogen Fuel Cell has no alternative
- Regulatory and moral shift towards clean energy and electric vehicles are strong market drivers with large potential
- Existing product and solutions with a proven track record
- Products and solutions for a variety of applications for example:  
Harbor, Airport, Datacenter, Telecom, Logistic, Public Transport etc.
- Significant economies of scale to come via modular product platform





# Investment Summary (cont.)

-  Strong presence in Germany, well placed to tap into this leading market for green applications
-  Development of partnerships with industrial partners
-  Accumulated investment in technology of EUR 52.0 million
-  Market Capitalisation GBP 24.0 million at current share price of 3.75P (as at 10 February 2012)
-  Required investment for third party to catch up with our IP roughly EUR 200.0 million

# Appendix - A look into the Market

Name	Country	Electrolyzer	Stack		System					Turnover 2010	Net Income 2010	Market Cap Feb 12
			<10kW	>10kW	Passenger V.	Light Duty V.	Bus	Ship	Stationary			
Ballard	CAN	No	Yes	Yes	Yes *	No	Yes *	No	No	£42,390	-\$22,770	£75,280
Hydrogenics	CAN	Yes	Yes	Yes	No	No	Yes	Yes	Yes	£13,640	-\$5,570	£23,370
Proton Motor	UK/GER	No	Yes	Yes	No	Yes	Yes	Yes	Yes	£0,720	-\$3,020	£23,960
ITM Power	UK	Yes	Yes	No	No	No	No	No	No	£0,008	-\$5,700	£52,030
										all Values in Million GBP		
					* - with Daimler					EX Rate Can \$ to GBP 0,633		

# Appendix - Funding of Development Projects

-  Proton Motor has received support for non-refundable grant funding from the National Innovation Programme (NIP) of the German Government
-  NIP funding for the development of a new PM400 stack generation with a performance up to 20 kW for applications from 20 to 100 kW. Higher performance will allow major cost reduction for the overall system, available in 2012
-  NIP funding for the development of a Fuel Cell Range Extender Solution for light duty vehicles to double the range of operation comparing to a pure battery powered electric vehicle, available in 2012
-  NIP funding for the market introduction of the Fuel Cell Range Extender solution for up to 20 vehicles or a value of MEUR 3.8 of which 48% will be grant funded to the buyer of the vehicles in 2012/13

# Contacts

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