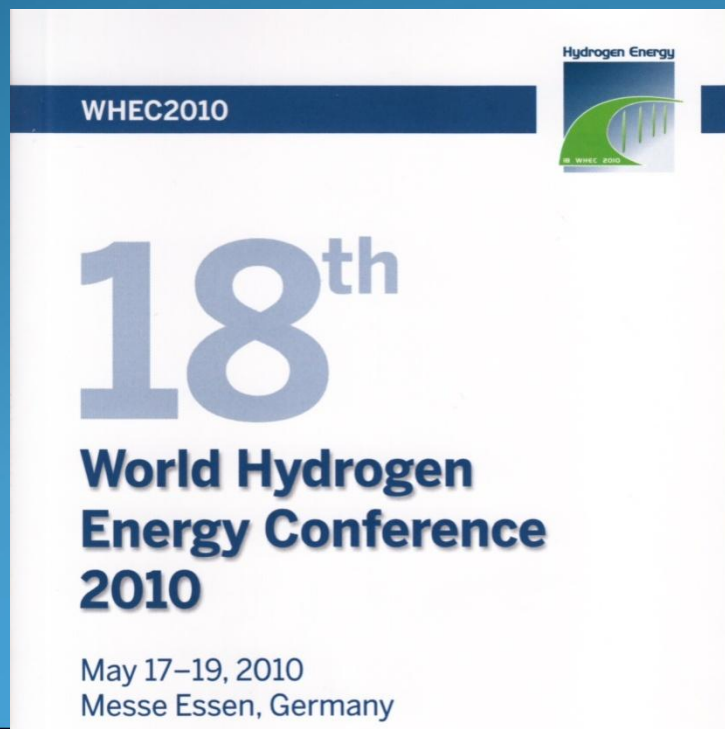


Водородни технологии доклад 2010 г.

д-р Богдан Цветков



Преглед

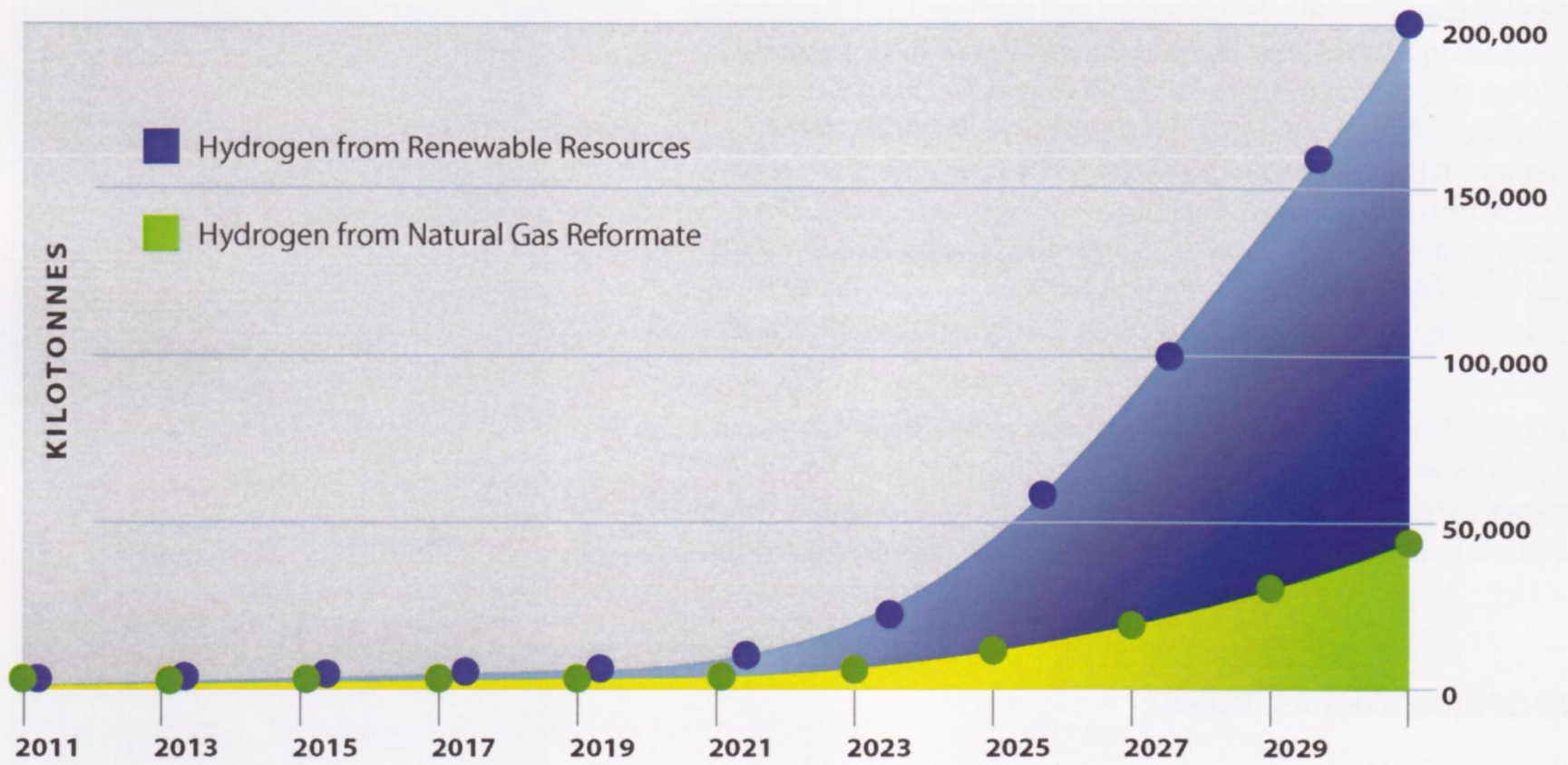
- Основни проблеми и прогнози
- Научни търсения
- Основни постижения
 - Съхранение на водород
 - Електрогенератори и електростанции
 - Нови приложения
- Транспорт
 - Последни разработки
 - газостанции на водород и *Charge point*
- Новости в образованието
- Заключение и роля на БГ Н₂ Общество

Бъдеще на горивата



Countries past peak production

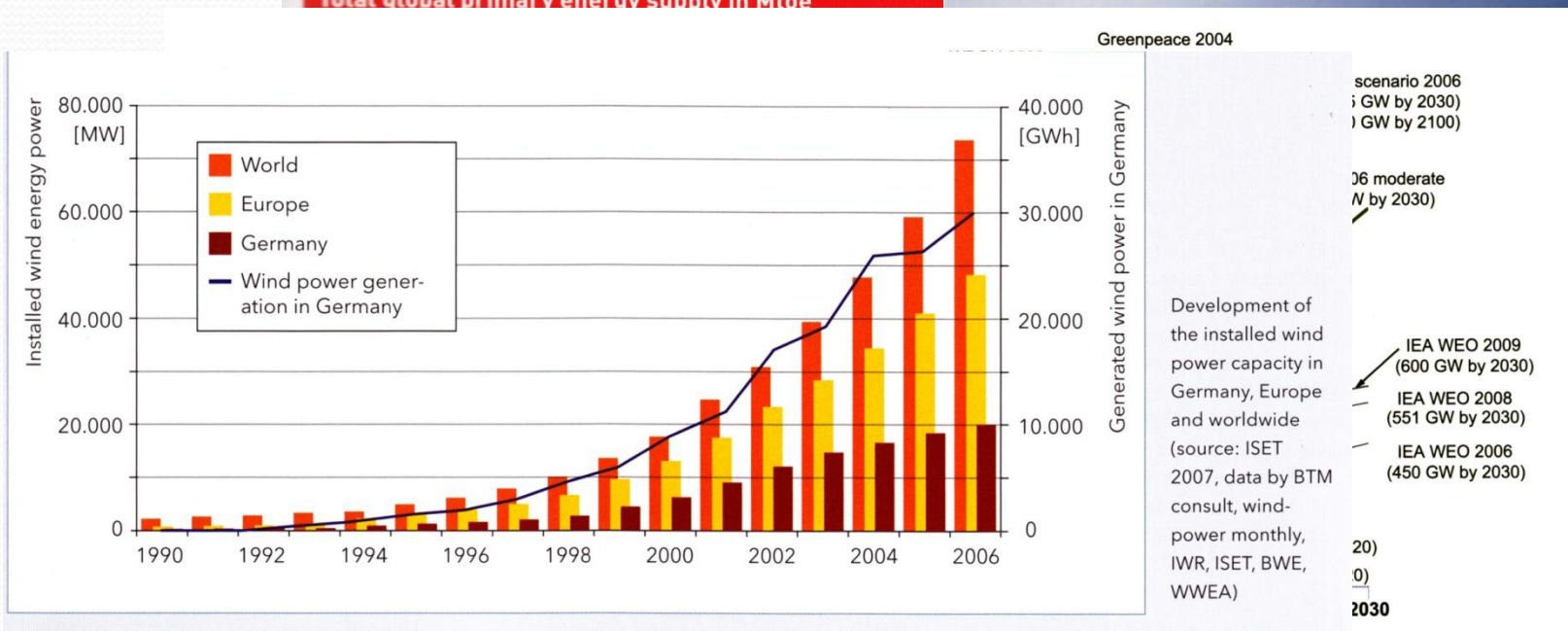
Countries at plateau



km
600 km
150 km

Бъдещето на енергетиката

Total global primary energy supply in Mtoe



Ludwig-Bölkow-Systemtechnik GmbH, 2009

Sources: GWEC 2008 Report: Worldwide wind capacity 1997-2008, Report, 2009
 International Energy Agency: World Energy Outlook (WEO) 1998, 2002, 2004, 2006, 2008
 Greenpeace: Windstaerke 12 (Windforce 12), May 2004
 WBGU 2003: German Advisory Council on Global Change (WBGU), World in Transition – Towards Sustainable Energy Systems, Report 2003

Growth of wind power: history and scenarios

The global supply of fossil and nuclear energy could start to decline between 20... not be covered.

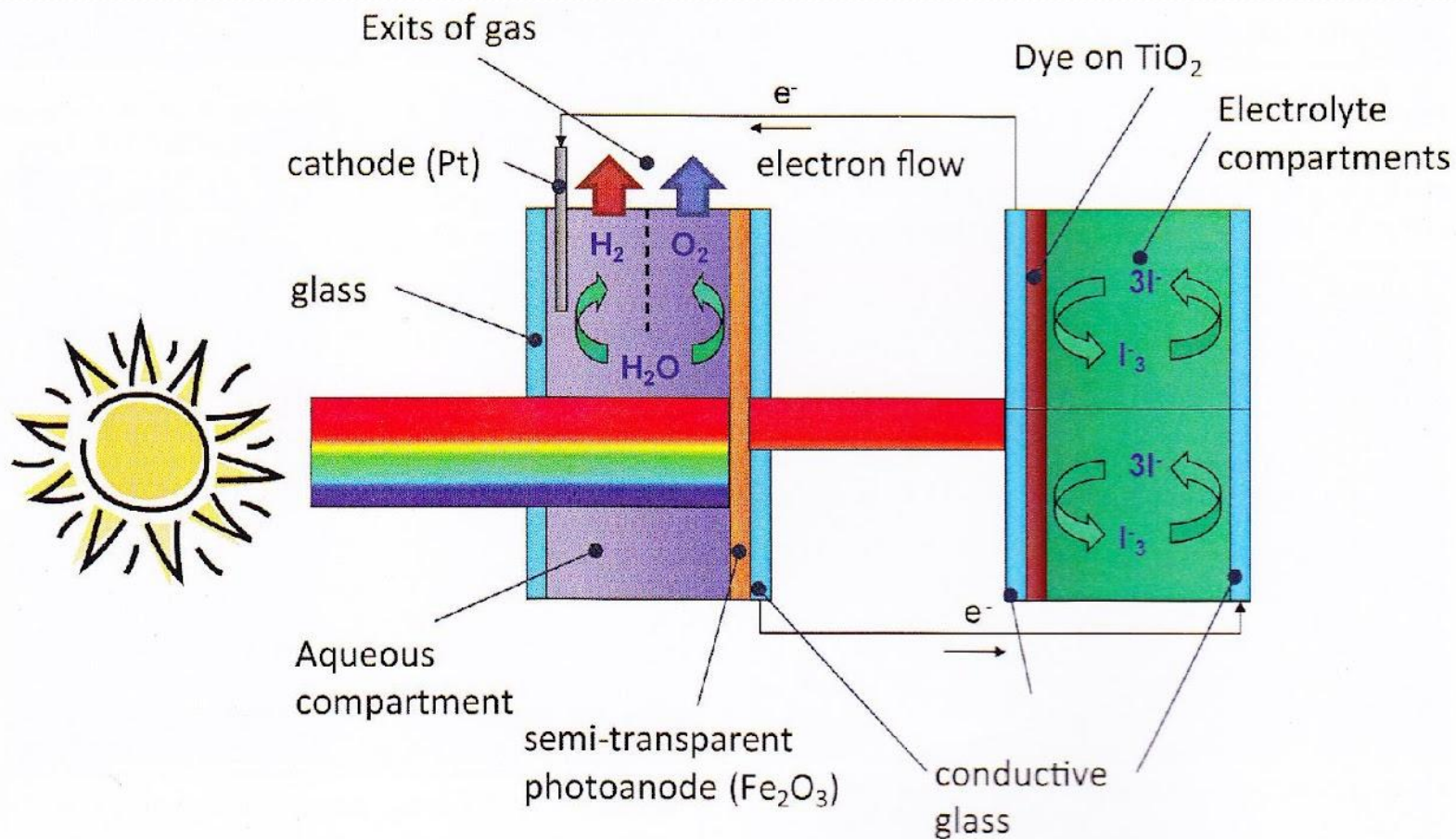
Source: Ludwig-Bölkow-Systemtechnik GmbH, 2009



HYDROGEN REPORT

SWITZERLAND 2010/2011

Hayka



Производство

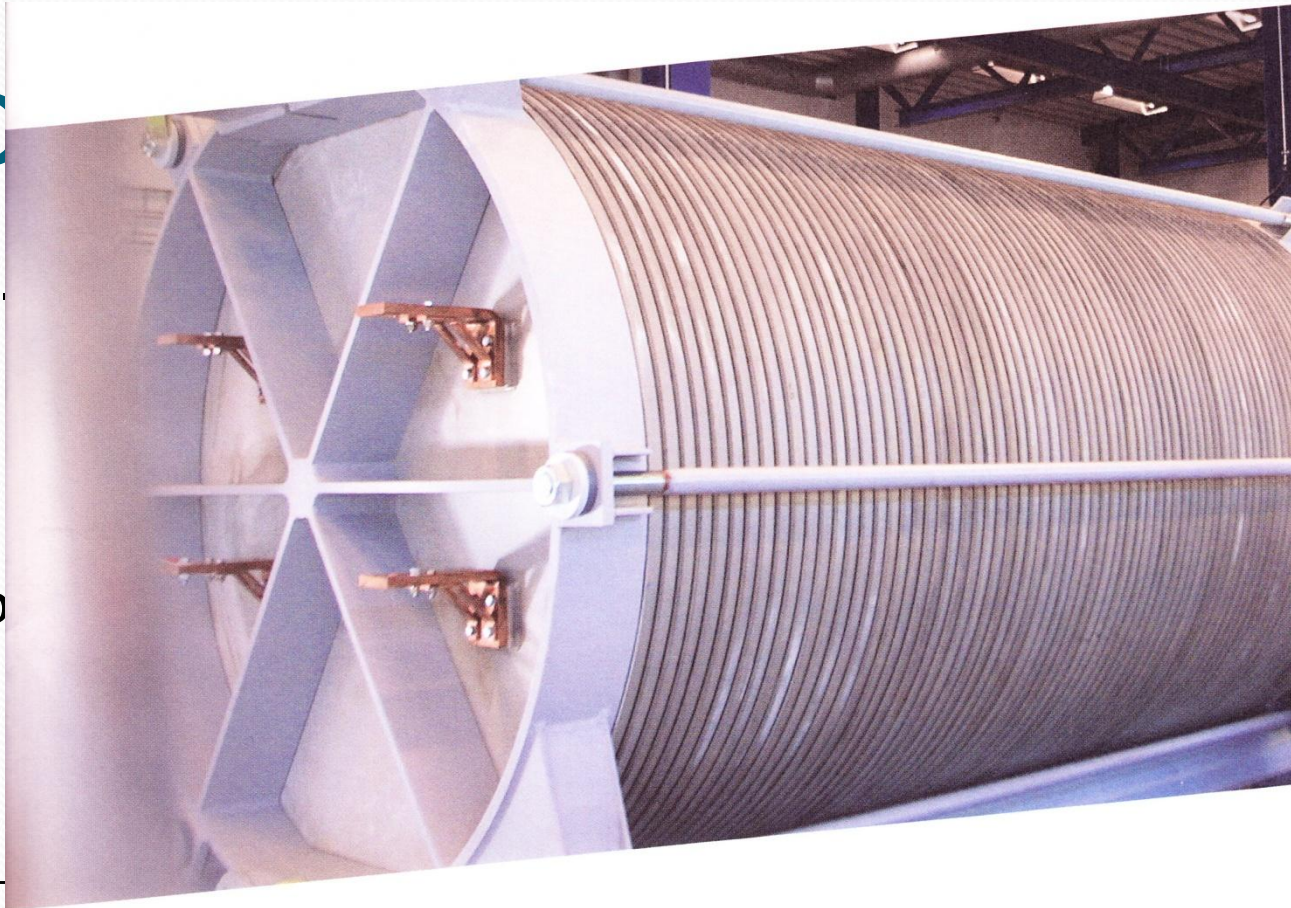
Метод

Природна газ
(реформинг)

Электролиза
(Ветрогенерир

Биомаса
(реформинг)

Фотобиологичн

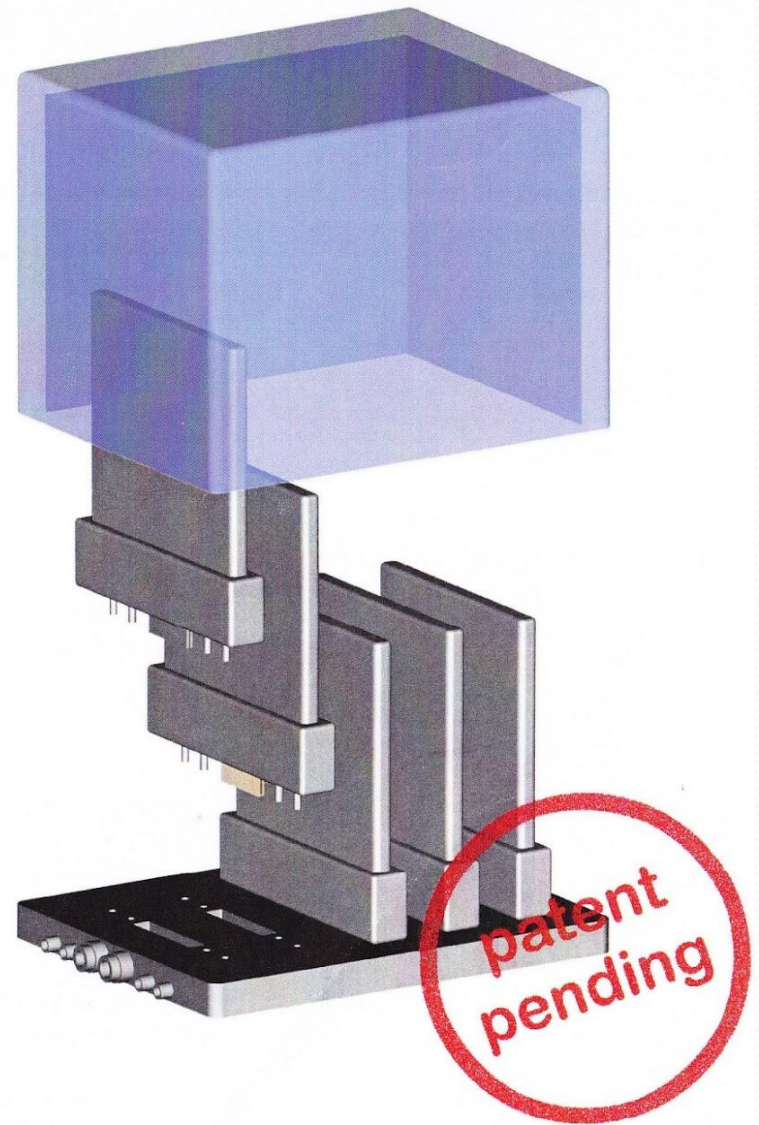


Statoil



Електрогенератор

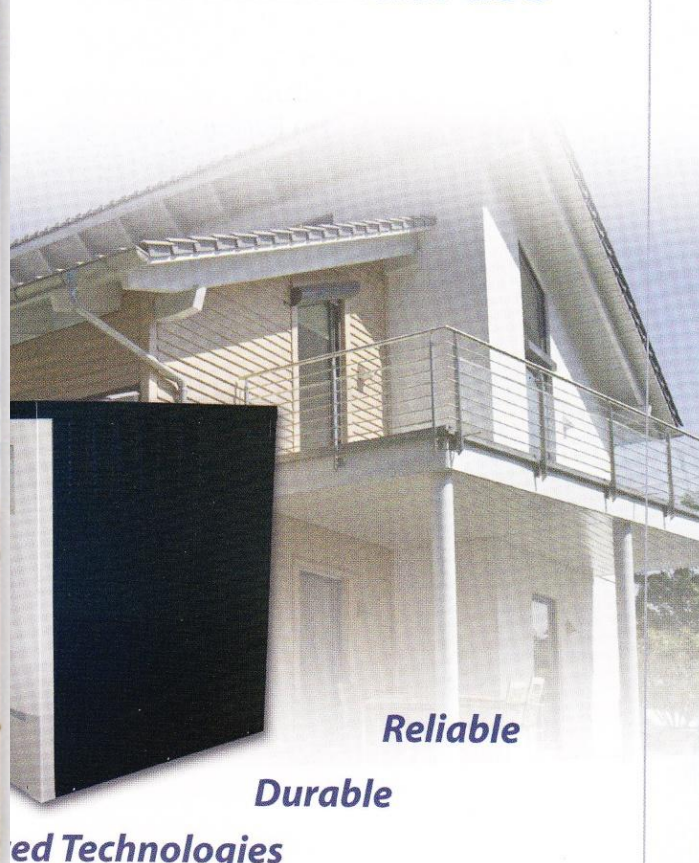
- Proton Motor (USA) module
stack 553 W/kg
- Ballard (Canada) module
stack 600-1100
- Hydrogenics (Canada) module
- CEKA (Switzerland) module
- PowerCell (Sweden) module
- Heliocentris (France) module
(Ballard stack)



Прилож



HP for residential use



Reliable

Durable

ed Technologies

2007: Installation of the BETA 1.5 unit

Приложения

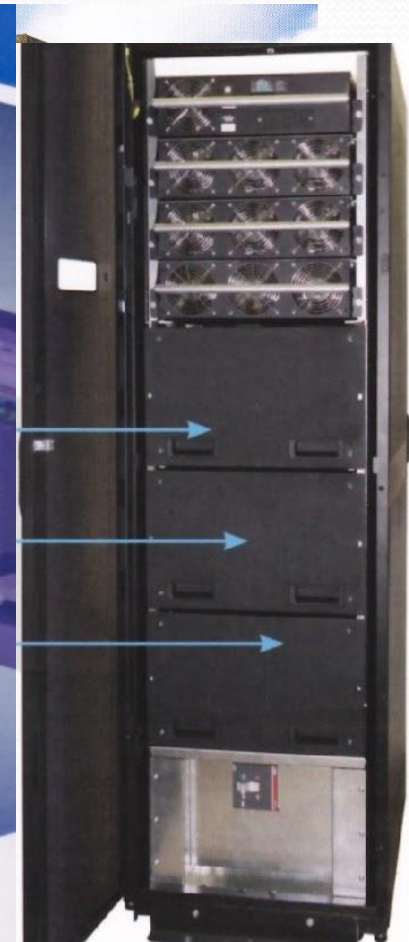


PEM Power Plants

Specifications:
Number of Modules: 12
Voltage: 716-700 VDC
Current: 120-130 A
Power per Module: 85-91 kW
Foot print: 40" container

Industrial electricity savings up to 20%!

1 MW PEM Power Plant

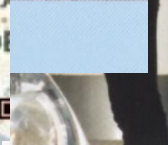
The infographic features a central orange circle with the title 'PEM Power Plants'. To the left, a white circle contains technical specifications. To the right, a blue circle highlights a 20% savings in industrial electricity. The background shows a stylized illustration of a power plant interior with a worker. The overall design uses blue and orange as primary colors.



Porsche 918 Spyder Plug-In-Hybrid, Dr. Ing.h.c. F. Porsche AG

Charge point и H₂

газостанции



Образование


**PRAGMA
INDUSTRIES**

ClearPak Fuel Cell Experiment Kit

Complete hardware set to get an
engineering insight of fuel cell design

€ 3
800

H₂ Storage Module

Fuel Cell Module

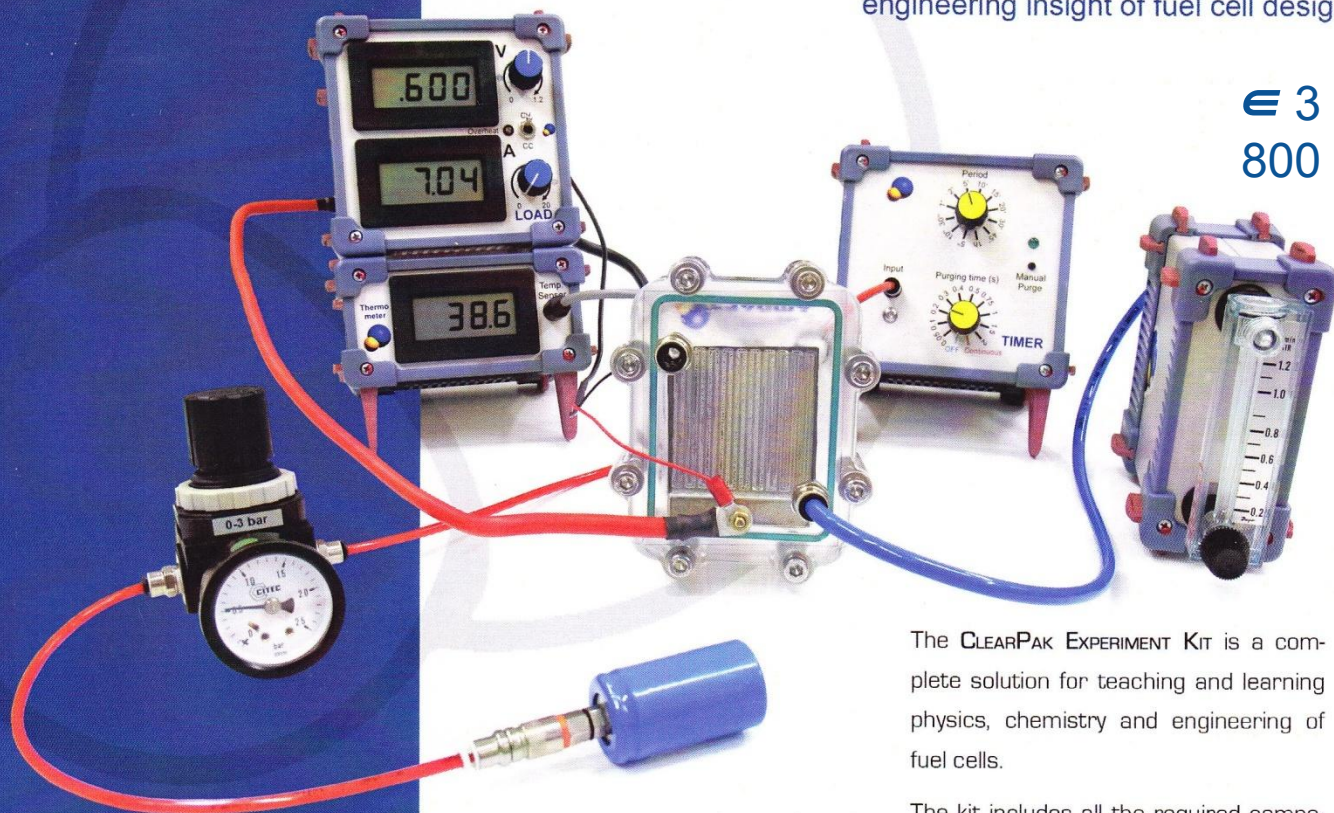
Energy Management
Module

Electronic Load

PC

em with bat-

ile with DC/DC



The CLEARPAK EXPERIMENT KIT is a complete solution for teaching and learning physics, chemistry and engineering of fuel cells.

The kit includes all the required compo-

Заклучение

- Нужда от енергия
- Научни търсения
- Производство на водород и електроенергия
- Когенерация на топлина и електроенергия
- Транспорт
- Водородни газостанции
- Образование

Роля на БГ Н2 Общество

- База данни
- Консултации и осъществяване на контакти
- Организиране на съвместни проекти по FP7
- Европейската водородна асоциация
- N.ENERGY Group

Благодаря за вниманието!

Общо събрание 2010 г.
Българско водородно общество