

2023 EU 기술동향 보고서 Hot-Tech Watch

SUSTAINABILITY



산업통상자원부



Podpora podnikania na dosah ruky



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지속가능성 산업 동향

□세계 지속가능발전 추세

- 2015년 제 70차 UN총회에서 2030년까지 달성하기로 결의한 의제인 **지속가능발전목표 (SDGs: Sustainable Development Goals)** 실현을 위해 인류 공동의 17개 목표 수립
- 지속 가능한 개발은 EU 조약의 핵심 원칙으로써 유럽 연합의 대내외 정책의 우선 목표
- EU는 기준 지표를 기반으로 소속 국가들의 SDG를 정기적으로 모니터링
- 유럽의회 환경위원회가 채택한 지속 가능한 배터리 법안 입법 추진(2022.3.10)-KOTRA
- EU는 'Corporate Sustainability Reporting Directive(CSRD)-기업의 지속가능성 보고지침'을 채택, 회계연도 2024년부터 적용할 예정-KOTRA

지속가능발전목표 지표 상위 20개국

Rank	Country	Score
1	Finland	86.8
2	Sweden	86.0
3	Denmark	85.7
4	Germany	83.4
5	Austria	82.3
6	France	82.0
7	Norway	82.0
8	Czechia	81.9
9	Poland	81.8
10	Estonia	81.7
11	United Kingdom	81.7
12	Croatia	81.5
13	Slovenia	81.0
14	Latvia	80.7
15	Switzerland	80.5
16	Spain	80.4
17	Ireland	80.1
18	Portugal	80.0
19	Belgium	79.5
20	Netherlands	79.4

- 우리나라에서도 2022년 7월부터 지속가능발전 기본법 시행
- 환경분야뿐만 아니라 사회·경제 지표를 보완한 균형잡힌 4차 지속가능발전 기본계획 도입

K-SDGs 17개 목표	[목표1] 빈곤층 감소와 사회안전망 강화	[목표8] 좋은 일자리 확대와 경제성장	[목표6] 건강하고 안전한 물관리	[목표16] 평화·정의·포용
	[목표2] 식량안보 및 지속 가능한 농업 강화	[목표9] 산업의 성장과 혁신 활성화 및 사회 기반시설 구축	[목표7] 에너지의 친환경적 생산과 소비	[목표17] 지구촌 협력 강화
	[목표3] 건강하고 행복한 삶 보장	[목표10] 모든 종류의 불평등 해소	[목표13] 기후변화와 대응	
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	[목표5] 성평등 보장		[목표15] 육상생태계 보전	
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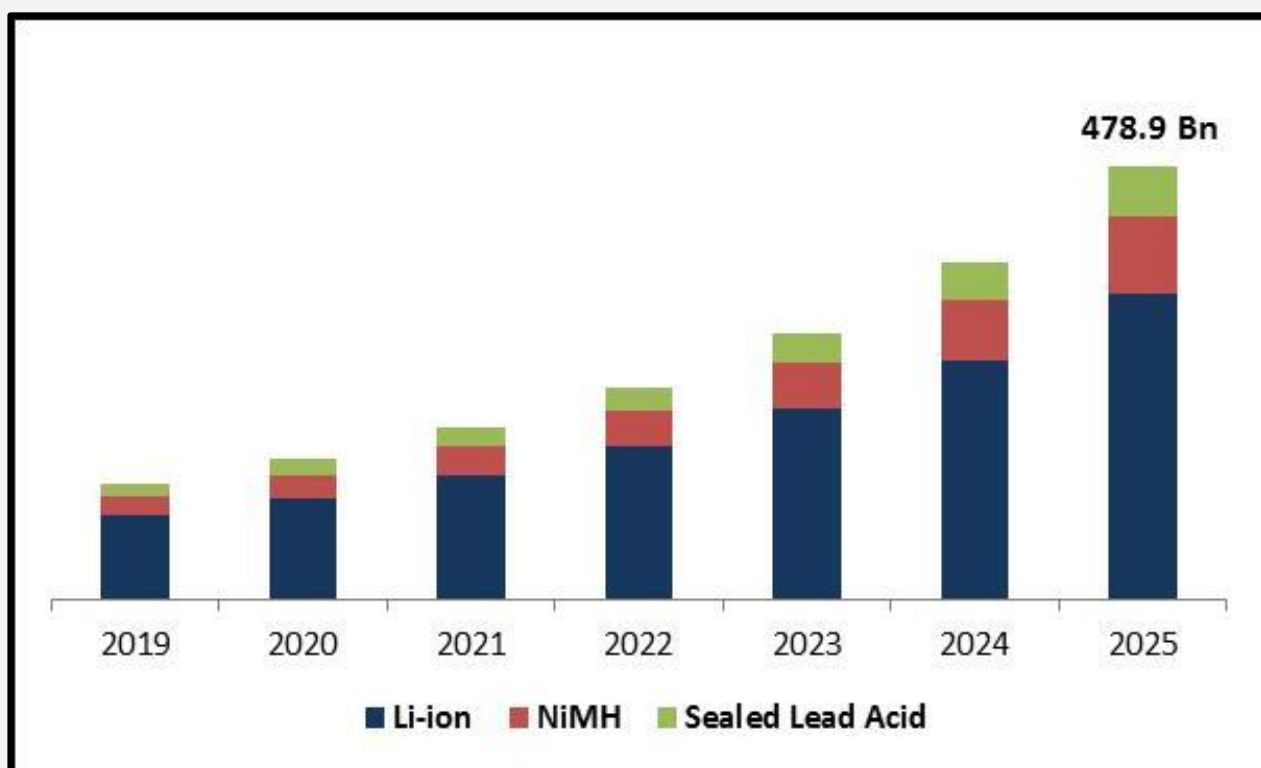
K-SDGs 17개 목표-지속가능발전포털

Sustainable Development Solutions Network
2023년 보고서

□전기차 시장 동향

- 2033년, 세계 전기차 판매량이 내연기관차의 판매량을 상회할 것으로 전망, 특히 유럽은 2028년에 달성할 것으로 보임
- 전기차 충전 시장 또한 2022년 465억 달러에서 2030년 4173억 달러로 약 9배 성장 전망
- 미국·EU·중국 3강 체제의 전기차 시장 경쟁이 심화하는 추세로, 제조사와 소비자 양측을 위한 국가 보조 정책이 도입됨
- 2020년, 코로나 19가 유발한 경기침체로 인해 세계 승용차 판매가 16% 감소한 반면, 전기차 판매는 전년 대비 41% 급증
- 우리나라에서도 전기차 구매보조금 정책과 충전소 증설에 힘입어 전기차 판매량이 증가하는 추세

배터리 종류별 세계 전기차 시장 규모 전망

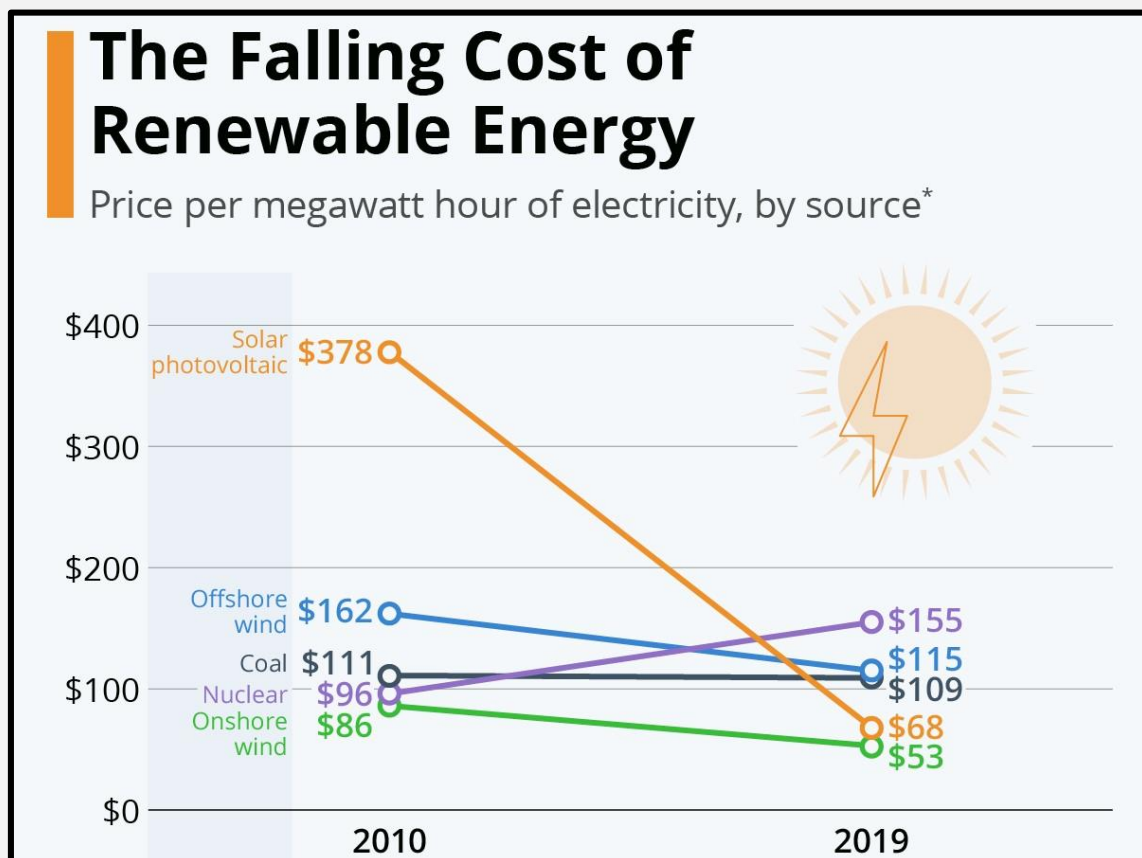


왼쪽부터 리튬이온 전지, 니켈 수소전지, 계통식 납전지

출처: kbv research

□ 대체에너지 산업 동향

- 화석연료의 환경오염 문제가 심각해짐에 따라, 세계 각지에서 규제가 늘어나는 실정
- 반면, 대체에너지에 속하는 수소 · 연료전지 · 셰일 가스 · 및 재생에너지(태양광 · 풍력 · 수력 등)에 대한 투자, 연구, 지원금은 늘어나는 추세
- 세계 대체에너지 시장은 2021년 기준 약 1조 3,200억 달러로 평가되었고, 2022-2029년 간 8.8% 이상의 안정적인 성장률을 유지할 것으로 전망-Bizwit Research & Consulting LLP
- 우리나라에서는 2023. 6. 09 일자로 '위험물안전관리 세부기준'을 개정하여 주유소에서도 수소연료전지를 설치하고 전력을 생산하는 것이 허용됨
- 2023. 7. 03 일자로 환경부, 인천시, 현대자동차, SK E&S 등은 업무협약을 체결하고 수소전기버스 3대를 학생 통학용으로 도입하는 등, 정부와 기업 모두 대체에너지 연구 · 도입에 적극적
- 대체에너지에 대한 적극적인 투자와 연구가 이루어진 결과, 세계적으로 발전 비용이 감소하는 추세



재생에너지 발전 비용의 감소를 보여주는 그래프
위에서부터 태양광, 육풍, 석탄, 원자력, 해풍 발전

출처: statista

-전기차 관련 기술-

개발 국가	캐나다	프로필 타입	Technology Offer
개발 단계	시장 진출	지식재산권 현황	적용됨
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~6 Jun 2024

기술 개념

- 리튬 이온 배터리, 연료 전지 및 전자전력 위한 열 관리 솔루션

기술 설명

- 기관 형태에 따라 구리보다 열 전도율이 10~100배 우수한 금속 시트를 사용하여 열을 효율적으로 전달하고 셀을 작동 온도 범위 내로 유지하는 기술

기술 특 · 장점

- 공기 냉각만으로도 액체 냉각 수준의 성능 제공
- 차량의 수명과 주행거리를 35%까지 증대
- 차량의 주요 부품을 빠르게 가동/냉각
- 압축된 주변 공기를 활용한 효율적인 열 관리 시스템으로 무게, 크기 및 비용 절감
- 리튬 이온 전지, 연료 전지 및 전력 전자 부품과의 호환성

희망 파트너 및 역할

- 함께 열 관리 솔루션이 적용된 배터리팩 개발/생산할 파트너
- 배터리/추진 시스템/연료 전지 제조업체

문의

소 속 : (주)델타텍코리아 기술무역파트
 담당자 : 엄예빈
 연락처 : 02-3278-2711

Canadian experts in Lithium-ion batteries and thermal management offers products and services to enable electric vehicles to go further, be safer, charge faster and be more affordable

Summary

Profile type

Technology offer

Company's country

Canada

POD reference

TOCA20230607029

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance
Research and development cooperation agreement
Investment agreement

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

7 Jun 2023
6 Jun 2024

Last update

7 Jun 2023

General Information

Short summary

A Canadian SME develops an innovative thermal management solution for Li-ion batteries, fuel cells and power electronic systems. They have also produced thermally improved Li-ion energy storage systems, which has been designed for ground, aeronaval electric and hybrid electric-hydrogen propulsion applications as well as stationary storage systems.

They would like to establish either a commercial agreement with technical assistance, an investment, or a R&D cooperation agreement with a partner.

Full description

Performance, safety, and cost are the main barriers to the adoption of electric and hydrogen vehicles. These three issues may be related to a lack of optimized thermal management solutions (TMS) for Li-ion batteries.

Our client developed an innovative TMS that optimizes the thermal path from battery cells to the heat dissipation method, whether it be air or liquid, increasing the thermal performance of the battery. Their innovative TMS passively maintains critical systems in their optimal range of temperature, enhancing their performance and lifetime. The offered solution thus paves the road to efficient air-cooling thermal management.

Our client's solution takes the appearance of a metallic sheet, 1mm to 3mm thick with a thermal conductivity 10x to 100x superior to copper depending on the thermal design. It transports heat pipes principles, transporting and uniformizing heat efficiently between cells and the cooling/heating source to keep cells within their operating temperature range. Experiments showed that our client's solution, when coupled with air cooling was as performant as a traditional cold plate system. By dramatically reducing thermal resistance from heat transport, our client's solution enables air cooling to be as performant as liquid cooling.

The solution offered cools down the cells and uniformizes cells temperature below 5°C to reduce premature aging and to improve vehicle's range. It also prevents heat propagation to adjacent cells in the case of thermal runaway. It can be applied to any temperature-sensitive structures such as Li-ion batteries, fuel cells and power electronic systems. It is a perfect solution for power applications such as ground and aerospace electric/hybrid propulsion, swappable battery systems and for stationary energy storage systems.

Our client has further developed the first air-cooled Li-ion module of 2kWh/48V that allows for fast charging for Low-Speed Vehicle applications. Several modules can be plugged in series/parallel to create a battery pack of up to 16kWh/220V.

Our client is looking for industrial partners and customers to:

- Develop/adapt/produce thermal management solutions for green propulsion applications.
- Develop and produce battery packs with improved thermal management for power and energy storage applications.

Ideally, our client would like to find a partner with whom they can establish either a commercial agreement with technical assistance, an investment, or a R&D cooperation agreement.

Advantages and innovations

Advantages:

- Increases lifetime and vehicle range by up to 35%,
- Innovative passive TMS based on heat pipes principles,
- Thermal conductivity 10x – 100x copper
- Uniformize cells temperature bellow 3°C,
- Cool-down/warm-up critical systems efficiently,
- Allows for efficient thermal management using forced ambient air,
- Reduced weight, size, and cost,
- Compatible with Li-ion cells, fuel cells, and power electronics components

Advantages of Li-ion battery pack:

- Air-cooled
- High energy density
- Modular from 2kWh/48V to 16kWh/220V
- Increased range at low ambient temperature
- Increased lifetime

Technical specification or expertise sought

Stage of development

Already on the market

IPR Status

IPR granted

Sustainable Development goals

- **Goal 11: Sustainable Cities and Communities**
- **Goal 7: Affordable and Clean Energy**

Partner Sought

Expected role of the partner

Our client is looking to develop long-term partnerships with:

- Battery manufacturers
- Propulsion system manufacturers
- Fuel cells manufacturers
- Airframers

For commercial purpose and collaborative product development.

Type of partnership

Type and size of the partner

Commercial agreement with technical assistance
Research and development cooperation agreement
Investment agreement

- **Big company**
- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **04007005 - Heat pipes**
- **04001003 - Storage of electricity, batteries**
- **04002001 - Fuel cells**
- **04002008 - Cooling technologies**

Targeted countries

- **World**

Market keywords

- **03003 - Power Supplies**
- **03002 - Batteries**
- **06011 - Energy for Transport**

Sector groups involved

- **Aerospace and Defence**
- **Energy-Intensive Industries**
- **Mobility - Transport - Automotive**
- **Renewable Energy**

개발 국가	독일	프로필 타입	Technology Offer
개발 단계	실험 완료	지식재산권 현황	절차 진행 중
거래 유형	투자 합의	유효 기간	~30 Aug 2023

기술 개념

- 전기차용 무변압 충전기의 전류 누설 없애는 기술

기술 설명

- 배터리에 링크를 연결하는 충전기 고유의 DC-DC(직류) 단계를 사용하는 대신, 누설 전류에 대한 추가 보상 회로없이 작동하여 저주파 진동 배터리에 효율적

기술 특 · 장점

- 단순한 회로 구조
- 추가 부품 불필요
- 국제 AC 그리드(1AC, 2AC, 3AC)와 호환 가능
- 우수한 전류 누설 방지 성능

희망 파트너 및 역할

- 협력기업에 기술을 라이선스 제공하고 함께 개발할 의향이 있음
- 완전 전기차 및 하이브리드 차량 제조업체
- 충전 부품 공급업체

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Control mechanism to prevent unwanted leakage currents in electric vehicle chargers

Summary

Profile type

Technology offer

Company's country

Germany

POD reference

TODE20220830006

Profile status

PUBLISHED

Type of partnership

Investment agreement
**Research and development
cooperation agreement**

Targeted countries

Contact Person

[Raysa GOIS](#)

Term of validity

30 Aug 2022
30 Aug 2023

Last update

30 Aug 2022

General Information

Short summary

A German university has developed a method that reduces the leakage current in transformerless chargers for electrical vehicles. This has been proven to reduce leakage current considerably, even to zero. This invention could be utilised in all battery-based electric vehicles, whether all-electric or plug-in hybrid. Licensees are sought. A technical co-operation agreement is also offered.

Full description

The number of electric vehicles that are being registered is increasing significantly each year. The efficient charging of the drive battery is a key technology for the continued success of electric vehicles on the market. In this context, attention has recently turned to transformerless on-board charger concepts. Given the known and considerable leakage capacitance of the battery and the connected high-voltage system, special care must be taken with transformerless chargers to ensure that high leakage current is not generated to ground and through the protective earth (PE) conductor.

The patent-pending invention from a German university uses a method that does without an additional compensation circuit for leakage current, instead using the charger's inherent DC-DC (direct current) stage that connects its link to the battery (see figure). This DC-DC stage makes it possible to effectively compensate for low-frequency pulsating battery potentials and the resulting unwanted leakage current, such as those that occur particularly with

transformerless on-board chargers for electric vehicles on various AC (alternating current) grids. This has been proven to reduce leakage current considerably, even to zero. All battery-based electric vehicles, whether all-electric or plug-in hybrid, could utilize this circuit in the future with a suitable control mechanism.

The German university offers interested companies the opportunity to license and continue to develop this technology with the inventors. The invention is directed to automobile manufacturers or their suppliers and to battery manufacturers who would like to make use of the technology.

Advantages and innovations

The patent-pending invention from a German university uses a method that works without an additional compensation circuit for leakage current, instead using the charger's inherent DC-DC (direct current) stage that connects its link to the battery (see figure).

The following advantages result from this invention:

- Simpler circuit concept
- No additional components
- Compatible with international AC grids (1AC, 2AC, 3AC)
- Excellent leakage current reduction

Technical specification or expertise sought

Stage of development

Lab tested

IPR Status

IPR applied but not yet granted

Sustainable Development goals

• **Not relevant**

Partner Sought

Expected role of the partner

All battery-based electric vehicles, whether all-electric or plug-in hybrid, could benefit from this circuit in the future with a suitable control mechanism. All major car manufacturers and charging component suppliers are currently working on efficient charging concepts for electric vehicles in order to reduce charging time and costs (in material and electrical operating losses) and to increase range by, e.g., reducing weight.

The German university offers interested companies the opportunity to license and implement the technology in products and processes and to continue to develop this technology with the inventors.

Together with the inventors from the university, the technology can be further developed to increase the Technology

Readiness Level (TRL currently 3) or the technology can be adapted to the product needs of the cooperation partner.

Type of partnership

Investment agreement

Research and development cooperation agreement

Type and size of the partner

• **Other**

Dissemination

Technology keywords

- **001001004 - Electronic engineering**
- **04001003 - Storage of electricity, batteries**
- **02009016 - Charging system**
- **02009026 - Energy supply system**
- **02009002 - Hybrid and Electric Vehicles**

Targeted countries

Market keywords

- **03002 - Batteries**
- **09001005 - Motor vehicles, transportation equipment and parts**
- **06008 - Energy Storage**

Sector groups involved

차량 전자 제어 장치의 액체 냉각 기술 검증 Request

(TRDE20230116006)

개발 국가	독일	프로필 타입	Technology Request
개발 단계	시연 사용 가능	지식재산권 현황	N/A
거래 유형	연구개발 협력 계약	유효 기간	~16 Jan 2024

기술 개념

- 자동차의 전자 제어 장치에 도입할 액체 냉각 기술

기술 설명

- 구리보다 열 전도율이 10~100배 우수한 금속 시트를 사용하여 열을 효율적으로 전달하고 셀을 작동 온도 범위 내로 유지하는 기술

기술 특 · 장점

- 공기 냉각만으로도 액체 냉각 수준의 성능 제공
- 차량의 수명과 주행거리를 35%까지 증대
- 차량의 주요 부품을 빠르게 가동/냉각
- 압축된 주변 공기를 활용한 효율적인 열 관리 시스템으로 무게, 크기 및 비용 절감
- 리튬 이온 전지, 연료 전지 및 전력 전자 부품과의 호환성

희망 파트너 및 역할

- 시제품을 테스트 / 결함 발견 / 시장 요구에 맞게 개선
- 공동 판매 계약 가능

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Electronics manufacturer sought to validate novel liquid cooling concept for electronic control units to be used in future mobility concepts and other sectors

Summary

Profile type

Technology request

Company's country

Germany

POD reference

TRDE20230116006

Profile status

PUBLISHED

Type of partnership

Research and development cooperation agreement

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

16 Jan 2023
16 Jan 2024

Last update

16 Jan 2023

General Information

Short summary

A German automotive supplier seeks manufacturers of electronics to validate a novel liquid cooling concept for electronic control units. The prototype answers the growing demand for heat dissipation due to electrification and autonomous driving functions. Advantages are reduced weight (-35%), less space (-50%) and improved cooling (+10%). Partners are sought to test the prototype (TRL5) to bring it to market maturity and possibly act as a sales partner.

Full description

Electrification, driving assistance systems and autonomous driving functions increase the number of electronic control units (ECUs) and computing power in current and future mobility concepts. This causes more need for electrical power and thus more waste heat produced, which must be removed from the ECUs' housings to ensure their safe operation. 1250 W are predicted until 2025.

From an electrical power of approx. 150 W, only liquid-cooled systems can provide sufficient cooling capacity for cooling of the ECU. However, with the power losses to be expected future ECUs, it is foreseeable that current liquid cooling systems and their cold plates will reach the limits of their performance. In addition to the processors for autonomous driving functions, the power electronics of battery-electric vehicles also require cooling. This cooling task can also usually only be solved with liquid cooling.

A large German automotive supplier (Aluminum, steel and plastic) and a global tech company (software and system integration) have co-developed a cooling concept that not only meets the required cooling conditions, but also minimizes the weight and installation space of the cooling unit. The newly developed optimized coldplate is based on multi-channel flat tubes (Micro Multi Port, MMP) made of 3000 series aluminum (e.g. EN AW 3102). Thanks to their low wall thicknesses, the large number of extremely small chambers and the resulting very high internal surface area, as well as the good thermal conductivity of 160 to 200 W/mK versus approx. 130 W/mK for die-cast materials, they can dissipate high heat quantities in a short time.

For a prototype of the novel liquid cooling system, an MMP (Fig. 1) with external dimensions of 60 mm x 3 mm, a wall thickness of 0.35 mm and 29 chambers was used. This geometry is well suited for the use of water/glycol as a cooling medium. The MMP and the actual cold plate are connected by soldering (Fig. 2). The planar metallic contact ensures the best possible heat conduction. The choice of a suitable solder allows soldering to air atmosphere. The coldplate, in turn, is in good thermal contact with the components to be cooled on the PCB of the ECU. To compensate for manufacturing of the electronic components, thermal paste is usually applied between the cold plate and the components. The new concept allowed the amount of necessary thermal paste to be reduced to a minimum. This is extremely important because the thermal conductivity of the thermal pastes is a factor of 40 lower than that of the aluminum alloys used. The coldplates of the prototype are supplied with coolant by an external, on-board coolant circuit. The coolant is fed into one coolant connection at the housing of the electronic control unit and from there transported from there through the MMPs to a second coolant connection, where it leaves the housing again. The coolant can then be cooled down again via a chiller.

The cooling performance of the prototype was characterized using thermal simulations. The coldplate ensures that the components do not heat up above their specified operating temperature. The cooling performance is improved by up to 10 percent compared to conventional heat sinks. In addition weight can be reduced by around 35 percent compared with conventional die-cast solutions, equal to approximately one kilogram. In addition the compact design, especially of the MMPs, offers opportunities to minimize the required installation space. Compared with die casting solutions, the MMP-based coldplate requires a maximum of 10 mm in the Z-direction, which corresponds to a saving of around 50 percent.

Advantages and innovations

- The coldplate serves the need for liquid cooling of electronic control units in current and future mobility concepts (improvement of +10%)
- The required cooling capacity can be ensured at a significantly reduced weight, namely about 35 % savings, compared to a conventional die-cast solution.
- It enables savings in installation space in the Z-direction due to the flat design of the MMPs used (-50%).
- In addition to the coolant used for the prototype (water/glycol), the use of MMPs also opens up the possibility of using refrigerant from the air conditioning system and thus another significant leap in heat dissipation performance.

Technical specification or expertise sought

The industrial partner should be from the fields of power electronics, ideally related to the mobility sector (electro mobility, autonomous driving, etc.).

In addition to the automotive sector, the following fields are relevant: New Mobility, Railways, Ships, Aerospace, Chemicals, Energy Supply, Power Grids, Charging Technologies (electric vehicles), Telecommunications, Data Centers, Drive Technology, High Performance Electronics, Medical Technology, Defense, IT Hardware, Server Parks.

In general, cooperation partners are sought where heat generation is an issue (heat generation and its effect on electronics and respective cooling technologies).

Stage of development

Available for demonstration

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 7: Affordable and Clean Energy**
- **Goal 11: Sustainable Cities and Communities**

IPR Status

IPR granted

Partner Sought

Expected role of the partner

Role of the partner would be to validate and test the prototype, identify possible problems and help to further improve the solution so that it meets market demands. Agreements to jointly sell the product are possible.

Type of partnership

Type and size of the partner

Research and development cooperation agreement

- Big company
- SME 11-49
- SME 50 - 249
- SME ≤10

Dissemination

Technology keywords

- 02009014 - Automotive electrical and electronics
- 001001015 - Semiconductors
- 04002008 - Cooling technologies
- 001001004 - Electronic engineering

Targeted countries

- World

Market keywords

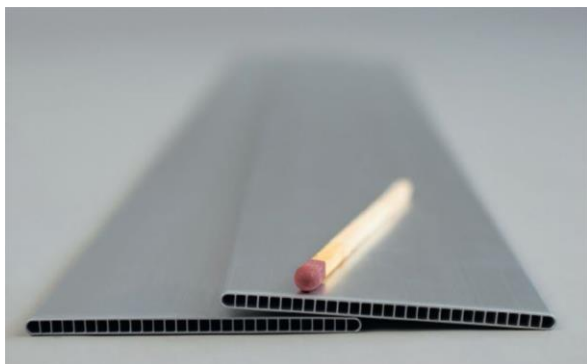
- 06002003 - Power grid and distribution
- 03003 - Power Supplies
- 03002 - Batteries
- 007004008 - Automobile parts
- 03001009 - Other electronics related (including keyboards)

Sector groups involved

- Aerospace and Defence
- Energy-Intensive Industries
- Digital
- Electronics
- Mobility - Transport - Automotive

Media

Images



[Micro Multi Port \(MMP\) with the dimension 60 mm x 3 mm and 29 chambers](#)



[General view of the prototype](#)



[Detailed view of the connection technology of the prototype](#)

개발 국가	스페인	프로필 타입	Technology Offer
개발 단계	시연 사용 가능	지식재산권 현황	적용됨
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~7 Sep 2023

기술 개념

- 전기차의 수명이 다한 리튬 배터리를 재처리하여 제조한 에너지 저장 시스템 (EES)

기술 설명

- 배터리는 전기차에서 평균 5년 사용되고 용량과 전력 효율 감소로 인해 보통 폐기하지만, 재처리 과정을 거쳐 3~4배 더 오래 사용 가능

기술 특 · 장점

- 연간 50만개의 EV 셀을 처리하고 1,500개의 5.0 kWh-ESS 모듈을 생산할 수 있는 공장을 보유하여 업계 평균보다 30% 저렴한 가격
- EV 셀 테스트 시간을 1/10로 단축하는 AI 시스템 도입(특허)
- 스토리지 모듈(SM)에 대한 온라인 트래킹 서비스 제공
- 휴대성
- CE 인증 확장 가능 / plug & play 및 CE 인증
- 신형 배터리와 동일한 보증 적용

희망 파트너 및 역할

- EU의 R&D 요청에 따라 제안서를 제출할 의향이 있는 파트너
- 제품 및 기술을 추가로 개발하기 위한 기술 협력에 관심있는 회사
- 저비용 고효율 배터리를 필요로 하는 부문과 관련된 상업적 파트너
- 재활용 프로세스가 적용된 공급망을 구현하려는 전기 자동차 회사

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Spanish startup developed an innovative solution to give retired EV batteries a second-life

Summary

Profile type

Technology offer

Company's country

Spain

POD reference

TOES20220527013

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

Contact Person

[Raysa GOIS](#)

Term of validity

7 Sep 2022
7 Sep 2023

Last update

7 Sep 2022

General Information

Short summary

A Spanish company specialised in sustainability, environment, climate change, and energy has developed an innovative solution for processing retired lithium batteries from electric vehicles (EVs) to manufacture energy-storage systems (EES). They manufacture their products from battery cells removed from electric vehicles, giving them a second life. The company is looking for technical cooperation agreement, research cooperation agreement, commercial agreement or other appropriate are preferred.

Full description

After an average of 5 years of service in electric vehicles (EVs), where batteries are subject to extreme operating temperatures, hundreds of partial cycles a year and changing discharge rates, lithium-ion batteries are normally retired due to faded capacity and power that fails to meet EVs range requirement.

Yet these batteries can live a second life 3-4 times longer, even when they no longer meet EV performance standards, which typically include maintaining 80 percent of their total usable capacity and achieving a resting self-discharge rate of only about 5 percent over a 24-hour period. Instead of being sent to scrapping and recycling, retired batteries from electric vehicles (cars, trucks, motorbikes, scooters) at the end of their mobility life are still useful.

In this context, SME founders have developed a new technology allowing a more efficient use of retired EV batteries:

they can be re-manufactured into high-quality, low-cost ESS with enhanced performance, reliability and safety. The company is finalizing the last stages of development and the solution will reach the market at the end of 2021.

The standard factory has a capacity to process 500,000 EV's cells yearly, to produce 1,500 5.0 kWh-ESS modules. They are currently operating a first pilot plant and have already produced modular 2.5 kWh-storage units, plug-and-play, based on lithium technology, for residential solar PV installation, or any remote area that requires isolated operation systems. The energy storage system is able to cover various application scenarios such as intelligent grid usage, isolated operation, consumption optimisation and peak shaving. The Spanish company intends to adapt its technology to these applications:

- 5 kWh: Residential and small community solar PV installations, autonomous lightening, remote antenna basis, UPS and backup.
- 50 kWh: Off-grid installations (rural environment), EV charging in gas stations, electricity supply in public works (urban and rural areas), festivals, markets or sport events.
- 1 Mwh: Demand coverage and firmness assurance, demand management, utility scale or big public events such as music festivals.

The objective of this profile is to create new international opportunities under commercial or technical cooperation agreement. The SME provides potential partners with system adaptation to the partner's specific application, customised installation and respective technical support. Furthermore, the company is looking for public or private bodies in the process of preparing a grant application to European funded programmes, that could be interesting in creating a synergy with this company.

Advantages and innovations

Unlike other similar companies on the market, this company allows remanufacturing second-life batteries (SLB) into high-quality, low-cost batteries that offer a better performance, reliability, and safety than simply repurposed batteries.

The offered solution has several advantages;

- Artificial intelligent system to reduce cell testing times to a tenth (patent)
- Secured tracking of the storage modules: on-line verification(cloud)
- Portable, CE certified scalable, plug & play and CE certified
- 30% less expensive,
- Same warranty as a new battery

Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

IPR granted

Sustainable Development goals

• **Not relevant**

Partner Sought

Expected role of the partner

- consortium coordinator or project partner willing to submit a proposal under EU R&D calls for funding.
- organisation interested in a technical cooperation with a view at further developing a product and/or a technology.
- commercial partners related with energy, sustainable construction or any sector requiring low-cost batteries for energy supply or companies from electric automotive sector willing to implement a recycling process in their supply chain.

Other types of contracts are also possible based on negotiations, e.g., manufacturing agreement, commercial agreement with technical assistance.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **SME 50 - 249**
- **SME <=10**
- **Big company**
- **SME 11-49**
- **Other**

Dissemination

Technology keywords

- **02009002 - Hybrid and Electric Vehicles**
- **04001003 - Storage of electricity, batteries**

Market keywords

- **09001005 - Motor vehicles, transportation equipment and parts**
- **03002 - Batteries**

Targeted countries

Sector groups involved

- **Mobility - Transport - Automotive**
- **Environment**

개발 국가	프랑스	프로필 타입	Technology Request
개발 단계	시장 진출	지식재산권 현황	N/A
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~22 Mar 2024

기술 개념

- 수소 가스(H₂)를 기반으로 한 에너지 시스템을 설계·생산

기술 설명

- 당사의 수소 가스 기반 에너지 시스템을 태양광 패널(PV), 연료전지(FC), 배터리 등에 결합해 경차나 경보트 충전에 사용할 수 있는 소형·경량 연료 전지 신제품을 출시할 계획

기술 특·장점

- 연료전지 신제품에 요구되는 특성
 - 공칭 전력: 5,000 ~ 10,000w
 - 전압: 22-48V
 - 최대: 250a
 - 최대: 5,000w
 - 버스 CAN 2.0 B: 1
 - 전해조 기술 : PEM
 - 냉각 시스템: 글리콜
 - 중량: 50Kg 미만
 - 휴대 가능성

희망 파트너 및 역할

- 신제품 구현을 위한 장비 및 기술 지원 제공
- 수형 수소 연료전지 기술을 가진 제조업체

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

French company is looking for a manufacturer partner of small, light weight 5kW hydrogen fuel cells for use in light mobility in order to charge the batteries

Summary

Profile type

Technology request

Company's country

France

POD reference

TRFR20230323022

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

23 Mar 2023
22 Mar 2024

Last update

23 Mar 2023

General Information

Short summary

A French company designs and produces energy systems based on hydrogen gas (H₂). The company plans to launch new low-carbon product that merges the energies of solar panels (PV), Fuel Cells (FCs) and batteries to be integrated into light cars or light boats. The company seeks compact small FCs with nominal power from 5kW up to 10kW. FCs should not be bulky and featured with some specific characteristics. A commercial agreement with technical assistance is sought with manufacturer of such FCs.

Full description

The French company aims to finalise an innovative system for the production of decarbonated electricity for mobility applications (light cars, light boats) and it is looking for compact 5kW hydrogen Fuel Cells (FCs).

The requested hydrogen FCs are not intended to power the system, but to recharge the batteries and also to heat them in some cases, such as intense cold.

Ideally, the hydrogen FCs should comply with sustainable development. So, as much as possible, the proposed FCs should be provided with indications about:

-carbon footprint of component sourcing

- carbon footprint of manufacturers sourcing
- carbon footprint of the packaging
- carbon footprint of its use (efficiency in%)
- carbon footprint of recycling
- system recyclability level (in%)
- level of dismantling of the system (in%)

Design should facilitate easy dismantling at end of life to an extend as reasonably can be expected.

A manufacturer of lightweight small hydrogen FCs is sought for commercial agreement with technical assistance.

Advantages and innovations

Technical specification or expertise sought

Requested compact FCs technical characteristics:

- Nominal Power: 5 000 to 10 000W
 - Voltage: 22-48V
 - I max: 250A
 - P max: 5 000W
 - Bus CAN 2.0 B: 1
 - Electrolyser technology: PEM
 - Cooling system: Glycol
 - Weight: < 50 Kg
 - Type: Mobility
- Electronic card must comply with the automotive standards

Operating conditions:

- maximum operating temperature 30°C to 40 C
- the flow temperature is above 0°C
- 95% air humidity
- presence of sand in the air
- presence of salt in the air

Stage of development

Already on the market

IPR Status

Sustainable Development goals

- **Goal 7: Affordable and Clean Energy**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 12: Responsible Consumption and Production**

Partner Sought

Expected role of the partner

Type of partner:

Industrial manufacturer of compact hydrogen Fuel Cells

Role of the partner:

To provide the specific equipment and technical support for implementing FCs

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

• **SME 50 - 249**

• **SME 11-49**

• **SME <=10**

• **Big company**

Dissemination

Technology keywords

- **02009017 - Electrical supply system**
- **04001003 - Storage of electricity, batteries**
- **004002001 - Fuel cell, hydrogen production**
- **02009014 - Automotive electrical and electronics**
- **03004004 - Electrical Engineering/ Electrical Equipment**

Targeted countries

- **World**

Market keywords

- **06008 - Energy Storage**
- **06007001 - Other energy production**
- **09001005 - Motor vehicles, transportation equipment and parts**
- **03002 - Batteries**
- **09001007 - Other transportation**

Sector groups involved

-에너지·연료·전지 기술-

개발 국가	벨기에	프로필 타입	Technology Offer
개발 단계	시장 진출	지식재산권 현황	적용됨
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~4 Apr 2024

기술 개념

- 전 세계적으로 사용되고 있는 연료 최적화 기술

기술 설명

- 탄화수소(일반 및 바이오 연료) 사용 중에 연료 절감 및 유해 배출량 감소 가능
- 에탄올과 이온 화합물(공정 특허)로 구성된 용액이 액체 연료와 혼합되어 탄화수소를 즉시 처리, 유해배출물을 줄이고, 고순도의 완전한 연소를 발생시켜 연료 효율을 높임
- 당사는 상업 계약을 체결하고, 해당 기술을 파트너의 산업 분야에 접목하고자 함

기술 특 · 장점

- 다수의 국제 연구소 테스트 완료
- 세계의 산업 응용·운송 분야에서 활발히 응용되고 있음
- ASTM 인증(처리된 연료가 표준 연료로 남아있고, 엔진 친화적임)
- 중앙/비중앙 집중식 저장 시스템 모두 사용 가능
- (타 기술 대비) 매연 및 입자 70%, 질소산화물 60%, 일산화탄소 10%, 메테인 42%, 총탄화수소 29% 감소

희망 파트너 및 역할

- 장기적인 상업 계약을 구축할 기술 파트너

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Belgian engineering company offering fuel optimizing technology is looking for technical cooperation

Summary

Profile type

Technology offer

Company's country

Belgium

POD reference

TOBE20230328033

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

5 Apr 2023
4 Apr 2024

Last update

5 Apr 2023

General Information

Short summary

Belgian SME has developed a fuel optimizing technology that is used worldwide. It helps hydrocarbon (conventional & bio fuels) users to achieve faster their environmental goals through significant fuel savings and cuts in emissions within their current infrastructures.

Full description

The innovative solution consists of ethanol and ionic compounds produced by a patented process. The solution changes the interaction of the Hydrocarbon molecules with the Oxygen molecules and other oxidants during the combustion. The solution can be blended with liquid fuels at a refinery, central fueling tank or point of use at a ratio of 100 ppm of the solution and instantaneously treats hydrocarbons to create efficient low-carbon fuels. As a result lower harmful emissions will be produced for the same volume of fuel, helping end users meet their net-zero goals faster.

In regular combustion $CxHy$ vapor competes with nitrogen for collisions with oxygen present in the air and the combination of N_2 and O_2 in the endothermic combustion reaction steals energy and creates harmful NO_x emissions. This innovative fuel technology is however based on intermolecular forces enabling hydrocarbon molecules to interact with an increased amount of oxygen molecules resulting in cleaner, more complete combustion. The technology therefore contributes to converting regular hydrocarbon chains to more efficient fuels. The solution is

certified by third parties and ASTM, which means the treated fuel remains standard fuel and is engine friendly.

The solution has been tested by several international research centers and is currently deployed (TRL9) in several use cases on different continents in transportation as well as in industrial applications.

The company wishes to take a lead in the global transition to green fuels towards cleaner air for a cleaner world, and wishes to help at least 100 global corporations to reach their sustainability goals by 2023. The company is looking for partners to set-up commercial agreements with technical assistance.

Advantages and innovations

Their solution offers significant advantages in terms of fuel saving leading to several emissions reductions, that have been demonstrated by several use cases supported by international research findings.

Advantages compared to current solutions:

- Average 60% reduction in Nox emissions
- Average 10% reduction in CO emissions
- Average 70% reduction in smoke and emissions particles
- Average 42% reduction in CH4
- Average 29% reduction in THC emissions

The technology can be used in centralized as well as non-centralized tanks and storage systems.

Other advantages:

Blending operation: The solution can be blended with the fuel in a central fueling tank at any depot (warehouse) or gas-station through a Proportional Dosing System or at the refinery by a fuel delivery company.

Particle Filter regeneration: The regeneration time for the particular filter is reduced significantly, caused by cleaner combustion and a reduction in NOx and PMs.

AdBlue consumption: As a post-combustion system, the AdBlue is injected into the exhaust to reduce the NOx. This innovative fuel optimizer solution reduces NOx emission by around 60% and reduces AdBlue consumption.

Maintenance cost: Reduction in unburned Hydrocarbon during the combustion process, which results in cleaner after burning components in the engine, and the maintenance time is reduced significantly.

Return-On-Investment: The only investment for the end user is installing a Proportional Dosing System, which is repaid in the first month.

Technical specification or expertise sought

Stage of development

Already on the market

Sustainable Development goals

- **Goal 5: Gender Equality**
- **Goal 7: Affordable and Clean Energy**
- **Goal 13: Climate Action**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 12: Responsible Consumption and Production**

IPR Status

IPR granted

Partner Sought

Expected role of the partner

The company is looking for technology partners to build up a long-term commercial agreement.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

• SME <=10

Dissemination

Technology keywords

- **04003002 - Solid fossil fuel**
- **04003003 - Liquid fossil fuel**
- **004002002 - Fuel liquefaction, gasification**
- **04001005 - Transport and storage of gas and liquid fuels**

Targeted countries

- **World**

Market keywords

- **06010003 - Energy for Industry**
- **06007001 - Other energy production**
- **06011 - Energy for Transport**

Sector groups involved

개발 국가	캐나다	프로필 타입	Business Offer
개발 단계	시장 진출	지식재산권 현황	Secret know-how
거래 유형	상업 계약	유효 기간	~ 14 Mar 2024

기술 개념

- 고객의 요구 사항을 고려하여 제작하는 맞춤형 배터리

기술 설명

- 해당 배터리로 구동되는 제품을 설계 및 제조하는 OEM 파트너에게 솔루션을 제공

기술 특 · 장점

- 35년의 경력으로, 고객의 전기·기계·통신 및 환경 요건을 고려한 배터리를 설계
- 계량, 데이터 수집, 통신, 에너지 스토리지 시스템 생산업체와의 오랜 협력 경험
- 제조 과정을 가속화할 독점적인 디자인 개발
- 북미 지역에 네 곳의 제조 시설을 보유하여 안정적인 생산·공급

희망 파트너 및 역할

- 맞춤형 배터리 솔루션을 구현하려는 파트너
- 상업 계약 및 공급 계약을 체결할 파트너

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Canadian SME offers innovative custom battery solution

Summary

Profile type

Business Offer

Company's country

Canada

POD reference

BOCA20230315023

Profile status

PUBLISHED

Type of partnership

Commercial agreement
Supplier agreement

Targeted countries

• World

Contact Person

[**Raysa GOIS**](#)

Term of validity

15 Mar 2023
14 Mar 2024

Last update

2 May 2023

General Information

Short summary

Canadian custom battery manufacturer is offering their solution to OEM (original equipment manufacturer) partners that are designing and manufacturing battery powered products for implementation of their custom batteries. The goal of our client is to establish a commercial or supplier agreement.

Full description

Our client works closely with companies that are designing and manufacturing equipment that requires some form of custom battery. The company brings their extensive years of experience and work in tandem with their customers' design team to define and design the battery for the targeted application. This includes considering electrical, mechanical, communication and environmental requirements. Our client works together with their customers to acquire relevant certifications and then manufacture the custom batteries in one of their four North American facilities. Furthermore, our client has worked extensively with organizations that design and manufacture metering, data collection, communication, energy storage systems in the past and is offering their technology to additional partners for implementation of their solution and to form a commercial or supplier agreement.

Advantages and innovations

Our client brings 35 year of experience in designing and manufacturing custom battery packs for advanced systems and rugged environments. They have developed proprietary designs that will accelerate the design and manufacturing process. The company has four North American manufacturing facilities (Vancouver, Calgary, Toronto and Houston), which reduces the supply risk.

Technical specification or expertise sought

Stage of development

Already on the market

IPR Status

Secret know-how

Sustainable Development goals

- **Goal 7: Affordable and Clean Energy**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 12: Responsible Consumption and Production**

Partner Sought

Expected role of the partner

Our client is looking for additional partners to implement their custom battery solution and form a commercial or supplier agreement.

Type of partnership

Commercial agreement

Supplier agreement

Type and size of the partner

- **SME 50 - 249**
- **R&D Institution**
- **Big company**

Dissemination

Technology keywords

- **04001003 - Storage of electricity, batteries**
- **04002013 - Smart grids**
- **004006001 - Energy management**
- **02009026 - Energy supply system**

Targeted countries

- **World**

Market keywords

- **06011 - Energy for Transport**
- **03002 - Batteries**
- **03003 - Power Supplies**
- **06010003 - Energy for Industry**
- **06008 - Energy Storage**

Sector groups involved

- **Digital**
- **Renewable Energy**
- **Energy-Intensive Industries**
- **Electronics**



자급자족 수소에너지 공급시스템의 세계 유통·서비스 협력사 모색

(BODE20230607008)

개발 국가	독일	프로필 타입	Business Offer
개발 단계	시장 진출	지식재산권 현황	N/A
거래 유형	상업 계약	유효 기간	~13 Jun 2024

기술 개념

- 태양광 및 풍력 발전기에 접목해 녹색 에너지 공급에 사용 가능한 자급자족 수소 시스템 모듈

기술 설명

- 자유롭게 확장 가능한 모듈식 수소 전해조 시스템

기술 특·장점

- Plug & Play 방식으로 확장성이 뛰어나고 위치에 구애받지 않음
- 전해조, 저장탱크, 압축기, 연료 전지와 같은 다양한 모듈 및 확장 옵션과 결합 가능
- 친환경 에너지를 도입하려는 기업에게 효율적이고 유연한 솔루션 제공
- 저장기간이 긴 수소의 특성 상, 먼 지역까지 친환경 발전 전기 공급 가능

희망 파트너 및 역할

- 영업 파트너 및 기술 서비스 제공 파트너
- 전기, 가스 및 열 관련 전문 기술 보유
- 지역 에너지 공급 부문 책임자

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Self-sufficient green hydrogen energy supply system is looking for distribution and service partner worldwide

Summary

Profile type

Business Offer

Company's country

Germany

POD reference

BODE20230607008

Profile status

PUBLISHED

Type of partnership

Commercial agreement

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

14 Jun 2023
13 Jun 2024

Last update

14 Jun 2023

General Information

Short summary

A German company, developing and producing self-sufficient, modular hydrogen systems, is looking for international sales and service partners. In combination with photovoltaic or wind power their systems can be used as green energy supply for everyone and everywhere worldwide. In order to build up their international partner network, the company would like to get in contact with experts in electrical, gas and heat technology, well connected to the regional energy supply sector.

Full description

Founded in 2020, this young German company specialises in the development and manufacturing of modular green hydrogen systems. They offer a modularly configurable electrolysis systems that are expandable and scalable at any time. In combination with photovoltaic or wind power systems it offers a decentralized, self-sufficient, and green energy supply that can be used worldwide.

The systems combine several electrolyzers as well as modules and expansion options such as storage tanks, compressors, and fuel cells - for a modular and scalable energy supply. The great advantage of this location-independent systems is that they are plug-and-play capable and thus scalable, which offers the user any expansion options. In that way this new system offers as efficient and flexible solution for industrial companies who want to switch to renewable energy sources.

Further the plants are particularly suitable for supplying electricity in remote or rural areas. As hydrogen can be

stored for a very long time, the plants can also supply areas with electricity from renewable energy sources where this was previously difficult. Shortly after its founding as a spin-off of a well-established hydraulic company, the company is already moving on the international stage with its products. To develop their international sales they now want to set up an international network of sales and service partners, with expertise in electrical, gas and heat technology. For example: consultants or engineers for the energy sector or companies for gas, water and sanitary installations. The envisaged partners should act as distributor and / or as (technical) service partners for commissioning and maintenance of the plants.

Advantages and innovations

- Self-sufficient green energy supply
- Modular, scalable
- Plug + play
- Cost-effective + efficient
- Cloud-based maintenance and operation / remote capable
- Low maintenance

Technical specification or expertise sought

- expertise in energy technology (electrical, gas and heat technology)
- good knowledge and connection to the regional energy supply sector.

Stage of development

Already on the market

Sustainable Development goals

- **Goal 7: Affordable and Clean Energy**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 13: Climate Action**

IPR Status

Partner Sought

Expected role of the partner

The company is looking for sales partner (distributor) and / or technical service partner for commissioning and maintenance of the plants. The ideal partner should

- have expertise in electrical, gas and heat technology,
- be well connected to the regional energy supply sector.

Possible partners could be for example: energy consultants, energy engineers or companies for gas, water and sanitary installations.

Type of partnership

Commercial agreement

Type and size of the partner

- **SME <=10**
- **SME 11-49**
- **SME 50 - 249**

Dissemination

Technology keywords

- **004002001 - Fuel cell, hydrogen production**

Market keywords

- **06010002 - Energy for the community/public sector**
- **06010001 - Energy for private/domestic housing**
- **06008 - Energy Storage**
- **06010003 - Energy for Industry**
- **06003008 - Other alternative energy**

Targeted countries

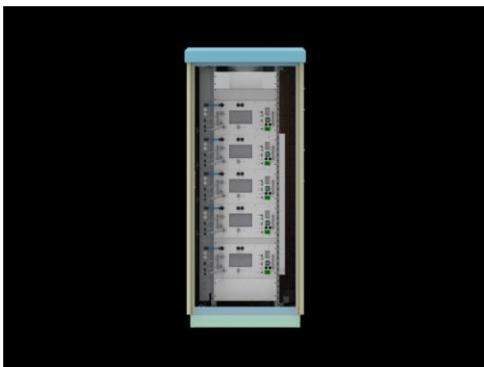
- **World**

Sector groups involved

- **Renewable Energy**

Media

Images



[Picture outdoor cabinet.jpg](#)



[Picture modular power cabinet.jpg](#)



[Picture indoor cabinet.jpg](#)

슈퍼 커패시터, 배터리, 연료전지를 위한 탄소 추출 나노물질

(BOES20221103026)

개발 국가	스페인	프로필 타입	Business Offer
개발 단계	시연 사용 가능	지식재산권 현황	Secret know-how
거래 유형	상업 계약	유효 기간	~3 Nov 2023

기술 개념

- 에너지 저장 시스템을 위한 첨단 탄소 기반 전극 소재

기술 설명

- 독점적인 나노 소재 개발 플랫폼을 통해 생산하는 탄소 기반 전극 소재

기술 특 · 장점

- 전체 부품 설계 포트폴리오를 당사가 보유함
- 금속 산화물 나노입자가 순수 그래핀 소재에 큰 정전용량을 전달하는 ESS(Energy Storage System)에 합성 가능한 맞춤형 첨단 소재
- 지속가능한 공정을 통해 생산한 나노 복합체
- 탄소 소재를 통한 전도성 증가
- 당사의 수성 전해질 기술은 유기 전해액에 비해 안전하고 친환경적

희망 파트너 및 역할

- 에너지 저장 장치의 제조업체/개발업체

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Carbon derived nanomaterials for pseudo and supercapacitors, batteries and fuel cells

Summary

Profile type

Business Offer

Company's country

Spain

POD reference

BOES20221103026

Profile status

PUBLISHED

Type of partnership

Commercial agreement
Investment agreement

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

3 Nov 2022
3 Nov 2023

Last update

3 Nov 2022

General Information

Short summary

A Spanish company designs, optimizes and manufactures advanced materials (carbon-based electrode materials) for energy storage systems, through a proprietary nanomaterial development platform. The team counts with a unique and disruptive technology covered by property rights and know how with impact in clean technology procedures and products, enabling a carbon neutral society. The types of partnerships considered are license agreements, research, and joint venture agreements.

Full description

A Spanish company designs, optimizes and manufactures advanced materials (carbon-based electrode materials) for energy storage systems, through a proprietary nanomaterial development platform. The team counts with a unique and disruptive technology covered by property rights and know how with impact in clean technology procedures and products, enabling a carbon neutral society.

With a committed mindset in clean technologies, the company's mission is to improve the energy storage sector, creating more powerful and efficient energy storage systems. For that purpose, they offer a complete portfolio of new generation nanomaterials. The company develops and manufactures its own products and works closely with the final user in the design and integration of nanomaterials.

The company is looking for early-stage collaborations with pseudo and supercapacitors, batteries and fuel cells manufacturers to integrate and customize nanomaterials through license agreements, joint venture agreements and research cooperation agreements.

Advantages and innovations

The advantages of the company include a full material design portfolio and specific methods to develop customized advanced materials to be integrated into energy storage systems (ESS) where the addition of metal oxide nanoparticles synthesized through their technology conveys great capacitance features to pure graphene materials.

In addition to this, the company owns a versatile material technology that covers a method of obtaining nanocomposites composed of carbonaceous materials such as graphene and metallic oxides where the product process is optimized (environmentally friendly, scalable and viable). The nature of the carbonaceous base is a key factor in the hybrid nanomaterial since it contributes to total specific capacitance through a double layer formation. As a result, the carbon material acts as a support for the nanoparticles and improves the conductive properties of materials.

The company's value proposition is based in the development of the electrode material in an early stage and in close collaboration with the final partner in order to customize and optimize the nanomaterials features in pseudo and supercapacitors, batteries and fuel cells.

Their aqueous electrolyte technology involves a much safer and cleaner process, less hazardous compared to that of organic electrolytes.

Technical specification or expertise sought

Stage of development

Available for demonstration

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 7: Affordable and Clean Energy**
- **Goal 13: Climate Action**
- **Goal 11: Sustainable Cities and Communities**

IPR Status

Secret know-how

Partner Sought

Expected role of the partner

Energy storage device manufacturer/devoper/integrator

Type of partnership

Commercial agreement**Investment agreement**

Type and size of the partner

- **SME <=10**
- **Big company**
- **SME 11-49**
- **SME 50 - 249**
- **Other**

Dissemination

Technology keywords

- **04001003 - Storage of electricity, batteries**

Market keywords

- **06008 - Energy Storage**

Targeted countries

- **World**

Sector groups involved

- **Materials**

데이터 센터 정전 시 on-grid 백업 솔루션 용 재생가능 수소 발전기 (TOFR20220721016)

개발 국가	프랑스	프로필 타입	Technology Offer
개발 단계	시장 진출	지식재산권 현황	Secret know-how
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~21 Jul 2023

기술 개념

- 데이터 센터에서 재생 가능한 수소로 탈탄산 전기를 생산할 수 있는 엔진발전기(genset)

기술 설명



- 연료 전지를 통해 재생 가능 수소에서 전기를 생산하는 350kVA의 대용량 엔진발전기
- 4구역으로 나뉜 컨테이너 구조
 - 수소 회로, 히트 펌프 시스템 쿨링 장치
 - 연료 전지 시스템
 - 전지 저장/변환 시스템
 - 에어컨/전기 변환 시스템

기술 특 · 장점

- 에너지 독립성
- 탄소배출 없음, 오직 물만 배출
- 연료 전지 열손실 재활용 가능
- 무소음
- 화석연료 가격 변동에서 자유로움
- 원하는 곳에 고정 가능한 모듈식

희망 파트너 및 역할

- 데이터 센터 및 그 제작자
- 데이터 센터 보유 사업자(은행, 증권거래소, 통신사, 기업 등)
- 지자체 등 공공 인프라 보유자
- 파트너는 기술지원을 포함한 상업 계약을 맺고, 엔진발전기의 대여 및 구매 가능

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

High-capacity generator set (350kVA) powered by renewable hydrogen for data centers as an on-grid backup solution in case of power outage

Summary

Profile type

Technology offer

Company's country

France

POD reference

TOFR20220721016

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

21 Jul 2022
21 Jul 2023

Last update

21 Jul 2022

General Information

Short summary

A French company developed a genset for data centers to produce decarbonated electricity from renewable hydrogen. The fuel cell (FC) power can be sized according to the needed nominal power. The genset meets energy challenges by providing independence/reliability in addition to the data center information security, from the cooling system up to the entire building in the event of a power cut. Commercial agreement with technical assistance is sought with partner aiming to secure its data center.

Full description

In many industrial sites, data centers must ensure the total availability of their electrical power supply. These sites are equipped with generators, mostly with diesel engines, as well as UPS (Uninterruptible Power Supply) and batteries to ensure uninterrupted switching between the electricity grid and emergency generators.

Moreover, the Covid-19 crisis and the war in Ukraine raised the need to declare energy independence for the benefit of companies and to develop flexibility levers faster than expected. The use of renewable and carbon-free hydrogen plays a key role in making data centers smarter and adapted to these changes: fossil fuels cost increasing, and local energy independence.

The high-capacity 350 kVA genset is powered by renewable hydrogen. Electrical energy is produced from H₂ gas via a Fuel Cell. The genset has been designed to warrant 24/7 availability to the user network during the operating period. To ease setup, all the equipment is integrated into a 30-foot high cube container, i.e. 20m² of footprint.

The container is made up of 4 compartments isolated from each other by partitions:

- The 1st compartment accommodates the hydrogen circuit and the heat pump system air cooler.

- The 2nd compartment accommodates a FC system which produce electrical energy. The nominal power of the FC system is 220 kVA (250 kVA peak)

- The 3rd compartment accommodates an electrical energy storage system and an electrical conversion system. The function of electrical energy storage is to enable the genset to periodically deliver to the data center network electrical power greater than the power that can be supplied by the heat pumps alone, within the capacity of the conversion and transformation systems.

- The 4th compartment accommodates the air conditioning system and the electrical transformation system.

The French company seeks partners aiming to secure their data centers (existing or new data centers) by supplying decarbonated electricity. Commercial agreements with technical assistance are sought with partners aiming to secure their data center.

Advantages and innovations

Emitting only water, the genset has independent modules (Domestic Hot Water, Pulsed Air, Solar farm) that can be added to the system and offer several applications. Heat losses from the fuel cell can be reused.

- Zero carbon emissions
- Electrical + thermal energy
- Independence from fluctuating fossil fuel prices
- Noiseless solutions

Fuel cell power can be sized according to the nominal power to be reached 500 kVA or 1MW for example. The fuel cell is directly linked to the sizing of the H2 storage and the autonomy the data center is willing to achieve.

- 24-hour availability
- Ecologically responsible
- Stationary
- Modularity

Technical specification or expertise sought

Stage of development

Already on the market

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 12: Responsible Consumption and Production**
- **Goal 7: Affordable and Clean Energy**
- **Goal 13: Climate Action**

IPR Status

Secret know-how

Partner Sought

Expected role of the partner

The partner could be:

- Data center
- Data center constructor
- Private organisation with data center (telecom operator, bank, stock exchange, data center hosting, industrial or non-industrial company)
- Public infrastructure (Municipality....)

The innovative high-power ecological generator set can be rented or purchased under a commercial agreement with technical assistance.

The French company can help with the implementation and maintenance activities of the genset.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **Big company**
- **SME 50 - 249**

Dissemination

Technology keywords

- **10002007 - Environmental Engineering / Technology**
- **004002001 - Fuel cell, hydrogen production**
- **04005004 - Photovoltaics**
- **04002005 - Generators, electric engines and power converters**
- **004006001 - Energy management**

Targeted countries

- **World**

Market keywords

- **08002001 - Energy management**
- **06008 - Energy Storage**
- **06009 - Energy Distribution**
- **06010002 - Energy for the community/public sector**
- **06003008 - Other alternative energy**

Sector groups involved

- **Renewable Energy**
- **Environment**

Media

Images



[High-capacity generator set powered by renewable H2 for data centers](#)

개발 국가	프랑스	프로필 타입	Technology Offer
개발 단계	시장 진출	지식재산권 현황	Secret know-how
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~31 Aug 2023

기술 개념

- 재생 가능 수소에서 탈탄산 전기를 생산하기 위한 연료 전지, 수소 탱크 및 전력 팩으로 구성된 소규모 전력 시스템

기술 설명

- 3개 파트 구성
 1. 연료 전지: 시스템이 작동하는 내내 연료 전지가 수소를 사용하여 전기 생성
 2. 수소 탱크: 수소 700g를 수용하는 분리 가능한 탱크가 연료 전지에 수소 공급, 안전을 위해 서버와 실시간 통신하는 센서가 탱크의 위치, 온도, 수소 충전량을 감지
 3. 배터리와 DC/DC 컨버터(직류/직류 변환기): 전력을 저장하고 변환해 시스템에 주기적 공급

기술 특 · 장점

- 탄소배출 없음, 오직 물만 배출
- 전기 에너지와 열 에너지 동시 생성
- 화석연료 가격 변동에서 자유로움
- 무소음
- 이동식/고정식 옵션
- 연료 전지 열손실 재활용 가능

희망 파트너 및 역할

- 물류 처리 과정에서의 탄소배출 감소를 추구하는 항만 사업자
- 파트너는 기술지원을 포함한 상업 계약을 맺고, 이동식 파워팩 또는 고정식 엔진발전기를 대여 및 구매 가능
- 당사의 설치 및 유지보수 지원

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Mobile power pack or stationary genset 5kW powered by renewable hydrogen, to supply electricity for handling and dockside logistics in seaports while avoiding polluting gas emissions

Summary

Profile type

Technology offer

Company's country

France

POD reference

TOFR20220831010

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

31 Aug 2022
31 Aug 2023

Last update

31 Aug 2022

General Information

Short summary

A French company developed small-power systems, comprising a fuel cell, an hydrogen tank and a power pack, in order to produce decarbonated electricity from renewable H2. These comprehensive solutions are up to the challenges faced by seaports in reducing CO2 emissions including forklifts, carts, pallets, conveyors, conveyance robots, sorters, picking systems automated warehouses, vehicles and life base. Commercial agreements with technical assistance are sought with seaports worldwide.

Full description

Major ports in some cases required to meet zero carbon emissions and equip with connected material to work faster. To reduce as far as environmental impact, the French company developed a solution hydrogen and genset technically viable.

Their systems are made up of 3 main parts:

-Fuel Cell:

Electrical energy is produced from H2 gas via Fuel Cell (alone 5kW or in series in series up to 20 kW). The systems have been designed to warrant 24/7 availability to the user network during the operating period.

-H2 tank:

The removable and connected tank contains 700g of hydrogen meaning an electrical energy equivalent of 12kWh. Possibility to put tanks in series. Its function is to supply the fuel cell. The sensors communicate in real time on their server: position, temperature, filling level. A generation of alarms in the event of a parameter being exceeded is communicated immediately.

-Batteries and inverter DC/DC:

Electrical energy storage system and an electrical conversion system. The function of electrical energy storage is to enable the genset or the power pack to periodically deliver to the user's system greater than the power that can be supplied by the fuel cell alone within the capacity of the conversion and transformation systems.

The French company is looking for partners willing to enable emission-free logistics and handling. Commercial agreements with technical assistance are sought with seaports aiming at achieving their sustainable CO2 emission reduction targets.

Advantages and innovations

Emitting only water, the genset has independent modules (solar farm, pulsed air, hot water) that can be added to the system and offer several applications. Heat losses from the fuel cell can be reused.

The main advantages are:

- Zero carbon emissions during the uses
- Electrical + thermal energy
- Independence from fluctuating fossil fuel prices
- Noiseless solutions
- 24-hour availability
- Ecologically responsible
- Stationary or mobile
- Modularity

Technical specification or expertise sought

Stage of development

Already on the market

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 13: Climate Action**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 12: Responsible Consumption and Production**
- **Goal 7: Affordable and Clean Energy**

IPR Status

Secret know-how

Partner Sought

Expected role of the partner

The partner should be a seaport supporting decarbonisation of logistics and handling.

The power pack (mobile) or the genset (stationary) can be purchased or leased by the partner under a commercial agreement with technical assistance.

The French company can help with the implementation and maintenance activities.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **SME 50 - 249**
- **Big company**

Dissemination

Technology keywords

- **10002007 - Environmental Engineering / Technology**
- **004006001 - Energy management**
- **04002005 - Generators, electric engines and power converters**
- **04005004 - Photovoltaics**
- **004002001 - Fuel cell, hydrogen production**

Targeted countries

- **World**

Market keywords

- **06008 - Energy Storage**
- **06003008 - Other alternative energy**
- **06009 - Energy Distribution**
- **08002001 - Energy management**
- **06010002 - Energy for the community/public sector**

Sector groups involved

- **Environment**
- **Renewable Energy**

Media

Images



[Power pack - mobile](#)



[Power pack in trailer](#)



[Genset 5kW - stationary](#)

개발 국가	프랑스	프로필 타입	Technology request
개발 단계	시장 진출	지식재산권 현황	N/A
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~22 Mar 2024

기술 개념

- 공칭 전력 5~10kW 소형 연료전지 제조업체 물색

기술 설명

- 수소 기반 에너지 회사가 태양광 패널, 연료전지, 배터리 등을 경차나 소형 보트에 접목시켜 탈탄산 전기 생산을 위한 시스템을 구축한 신제품을 출시할 예정
- 수소 연료전지 역할은 배터리 충전과 혹한 시 배터리 냉각 방지
- 지속 가능한 제작 공정

□ 기술 사양

1. 공칭 전력: 5,000 ~ 10,000w
2. 전압: 22-48V
3. CAN bus 2.0 B 채택
4. 전해조 기술 : PEM
5. 냉각 시스템: 글리콜
6. 중량: 50Kg 미만
7. 이동 및 휴대 가능
8. 차량 표준에 부합하는 전자 카드

□ 작동 조건

1. 작동 최고 온도 30°C ~ 40°C
2. 흐름온도 0°C 이상
3. 95% 공기 습도
4. 공기 중 모래 입자
5. 공기 중 염분

희망 파트너 및 역할

- 소형 수소 연료전지 제조업체
- 탈탄산 전기 생산 시스템 구현 위한 장비 및 기술 지원

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

French company is looking for a manufacturer partner of small, light weight 5kW hydrogen fuel cells for use in light mobility in order to charge the batteries

Summary

Profile type

Technology request

Company's country

France

POD reference

TRFR20230323022

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

23 Mar 2023
22 Mar 2024

Last update

23 Mar 2023

General Information

Short summary

A French company designs and produces energy systems based on hydrogen gas (H₂). The company plans to launch new low-carbon product that merges the energies of solar panels (PV), Fuel Cells (FCs) and batteries to be integrated into light cars or light boats. The company seeks compact small FCs with nominal power from 5kW up to 10kW. FCs should not be bulky and featured with some specific characteristics. A commercial agreement with technical assistance is sought with manufacturer of such FCs.

Full description

The French company aims to finalise an innovative system for the production of decarbonated electricity for mobility applications (light cars, light boats) and it is looking for compact 5kW hydrogen Fuel Cells (FCs).

The requested hydrogen FCs are not intended to power the system, but to recharge the batteries and also to heat them in some cases, such as intense cold.

Ideally, the hydrogen FCs should comply with sustainable development. So, as much as possible, the proposed FCs should be provided with indications about:

-carbon footprint of component sourcing

-carbon footprint of manufacturers sourcing
 -carbon footprint of the packaging
 -carbon footprint of its use (efficiency in%)
 -carbon footprint of recycling
 -system recyclability level (in%)
 -level of dismantling of the system (in%)
 Design should facilitate easy dismantling at end of life to an extend as reasonably can be expected.

A manufacturer of lightweight small hydrogen FCs is sought for commercial agreement with technical assistance.

Advantages and innovations

Technical specification or expertise sought

Requested compact FCs technical characteristics:

-Nominal Power: 5 000 to 10 000W
 -Voltage: 22-48V
 -I max: 250A
 -P max: 5 000W
 -Bus CAN 2.0 B: 1
 -Electrolyser technology: PEM
 -Cooling system: Glycol
 -Weight: < 50 Kg
 -Type: Mobility
 Electronic card must comply with the automotive standards

Operating conditions:

-maximum operating temperature 30°C to 40 C
 -the flow temperature is above 0°C
 -95% air humidity
 -presence of sand in the air
 -presence of salt in the air

Stage of development

Already on the market

IPR Status

Sustainable Development goals

- **Goal 7: Affordable and Clean Energy**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 12: Responsible Consumption and Production**

Partner Sought

Expected role of the partner

Type of partner:

Industrial manufacturer of compact hydrogen Fuel Cells

Role of the partner:

To provide the specific equipment and technical support for implementing FCs

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

• **SME 50 - 249**

• **SME 11-49**

• **SME <=10**

• **Big company**

Dissemination

Technology keywords

- **02009017 - Electrical supply system**
- **04001003 - Storage of electricity, batteries**
- **004002001 - Fuel cell, hydrogen production**
- **02009014 - Automotive electrical and electronics**
- **03004004 - Electrical Engineering/ Electrical Equipment**

Targeted countries

- **World**

Market keywords

- **06008 - Energy Storage**
- **06007001 - Other energy production**
- **09001005 - Motor vehicles, transportation equipment and parts**
- **03002 - Batteries**
- **09001007 - Other transportation**

Sector groups involved



이동수단 충전 및 발전기 기능 탑재한 off-grid 자율 발전소

(TOFR20220401016)

개발 국가	프랑스	프로필 타입	Technology offer
개발 단계	시장 진출	지식재산권 현황	Secret know-how
거래 유형	기술지원 포함한 상업 계약	유효 기간	~31 Mar 2024

기술 개념

- 태양광 발전과 수소 연료전지로 구동되는 이동식 발전소

기술 설명

- 고립지역에서 전기 공급 가능
- 조립 상태로 제공되어 설정, 시동 시간 단축
- 다용도 소켓 탑재
- AI의 제어 태양광 패널과 수소 연료전지로 전력을 발전 및 저장
- 일조량이 높을 때 태양광 발전의 비율 상승
- 연료전지의 발열로 저온에서도 배터리 사용 가능
- 온라인 플랫폼이 발전소와 실시간 연결되어 있어, 원격 유지보수 지원
- 교환 가능한 수소 충전 캐니스터 제공

기술 특 · 장점

- 2개의 재생 가능한 에너지원(태양광, 수소)으로 전기 발전
- 혁신적인 AI제어
- 배터리 동파 방지
- 발전소를 설치할 수 없는 지역에 배치 가능
- 원격 유지보수 지원
- 빠른 설치/해체

희망 파트너 및 역할

- 발전소를 임대/구입하고자 하는 민간/공공기관
- 특정 지역 개발 전, 발전소를 시범 운영하는 경우
- 일시적인 행사에서 전기 공급이 필요한 경우

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Off-grid autonomous station (5-30kW) based on renewable energies for green mobility to recharge bicycles/motorcycles/cars or for stationary use as power generator during ephemeral events

Summary

Profile type

Technology offer

Company's country

France

POD reference

TOFR20220401016

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

1 Apr 2022
31 Mar 2024

Last update

20 Mar 2023

General Information

Short summary

An innovative young French SME offers a new generation of mobile power station running with batteries powered by photovoltaic panels and hydrogen fuel cell. The station can be set up in less than a day in isolated areas (mountain, countryside) for example to daily recharge small vehicles or replace generators sets during exhibiting events. Partners willing to be equipped (municipalities, companies, event organisers, tourism offices) are sought for commercial agreements with technical assistance.

Full description

An engineering and services SME designs sustainable ecosystems that produce electricity from renewable energies by relying on PV panels and H2 fuel cell. The SME studies societal and technological impacts of decarbonated mobility or stationary uses on a territory. It develops/manufactures new-generation green electric power station for charging small vehicles in isolated area or supply electricity during ephemeral events instead of using diesel gensets.

The SME offers off-grid power station to supply green electricity when access to network is difficult (isolated tourism areas) for charging electric vehicles (bicycle, motorcycle, car). It is setup for an event or on a durable basis. It comes pre-assembled and has very short setup/startup time.

The station is equipped with electric sockets for recharging vehicles or other uses. Its batteries store green electricity coming from several PV panels on the top or from the fuel cell inside. The H2 canisters are clipped to run the fuel cell. The station has Artificial Intelligence which automatically manages the two renewable sources to charge the batteries, preferably using PV panels when there is sufficient light or secondly using the fuel cell to delay the H2 use. The AI also takes into account the average use of station and the weather data. In case of low ambient temperatures, batteries can be warmed by heat from the fuel cell, allowing them to operate even in cold weather.

The SME uses online platform which constantly communicates with the implemented station for data monitoring/analysis, H2 fuel cell consumption is monitored. In case of problem, it can perform maintenance remotely. The SME makes interchangeable H2 filled canisters available to its partner and evaluates the possibility in the future of equipping station also for the direct filling of H2 cars.

The SME seeks partners interested in implementing stations temporarily (rent) or permanently (purchase) under commercial agreement with technical assistance.

Advantages and innovations

The station is innovative & green because it is managed by artificial intelligence to provide users with electricity stored in its batteries charged from 2 renewable energy sources:

- or (and in priority thanks to the AI which decides) photovoltaic panels (if sufficient light)
- or the fuel cell which produces electricity from H2 (at night or in bad weather)

As a bonus when it is cold, rather than the station being stopped because the cooled batteries would no longer work, the calories from the fuel cell heat the batteries ensuring continuous service of quality.

Main advantages are:

- versatile & stand-alone for use off-grid in areas where access to electricity grid is difficult or impossible
- remote maintenance of station via the platform
- rapid implementation of station (less than 1 day) which limits costs, possibility of testing with mobile station before investing in heavy fixed infrastructure
- mobile (it can be moved quite easily) or dismantable (1-day max installation/removal)

Technical specification or expertise sought

Stage of development

Already on the market

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 11: Sustainable Cities and Communities**
- **Goal 12: Responsible Consumption and Production**
- **Goal 13: Climate Action**
- **Goal 7: Affordable and Clean Energy**

IPR Status

Secret know-how

Partner Sought

Expected role of the partner

The partner could have various reasons of using this new-generation of green power station for example to evaluate their local client needs in terms of electricity demand users in a specific area before investing heavily in new infrastructures or, to recharge daily their fleet of small electric vehicles in fairly isolated tourist areas or, to supply electricity during ephemeral events.

The partner could be a private or public organisation (company, municipality, event organiser, tourism office...) with needs to implement a station temporarily (rent) or permanently (purchase).

The French company fits out a station, provides technical support and maintenance activities. In addition, the SME supplies the partner with filled H2 canisters to operate the fuel cell.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **SME 50 - 249**
- **Big company**
- **SME <=10**
- **SME 11-49**

Dissemination

Technology keywords

- **04001003 - Storage of electricity, batteries**
- **02009002 - Hybrid and Electric Vehicles**
- **02009026 - Energy supply system**
- **04001006 - Transport and storage of hydrogen**
- **02009016 - Charging system**

Market keywords

- **06003008 - Other alternative energy**
- **06003002 - Photovoltaics**
- **09001007 - Other transportation**
- **07005006 - Other consumer services (including photo processing)**
- **09003007 - Other services (not elsewhere classified)**

Targeted countries

- World

Sector groups involved

- Renewable Energy

Media

Images



[Autonomous & versatile off-grid green electric power station](#)

Size of the station:

- Footprint (m): 7.8 x 5.4
- Height (m): 3.2
- Size of back local (m): 2.4 x 1.25 x 2.3

Technical characteristics of station:

- Nominal Power (W): 10,000
- Voltage (V): 42-59.9
- Intensity max (A): 200
- Power max (W): 10,000
- Daily use (h): 24
- Batteries Li-Ion (Wh): 50,000
- Fuel cell (W): 10,000
- Hydrogen tank (kg): 25
- PV surface (m²): 28
- Peak Power (Wc) of solar panels: 5,200
- Output 220v (W): 3 x 3,200
- Auxiliary output 12v (W): 75
- CAN Bus 2.0 B1

[Technical characteristics of the electric power station](#)

개발 국가	이탈리아	프로필 타입	Technology Offer
개발 단계	시연 사용 가능	지식재산권 현황	적용됨
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~2 Apr 2024

기술 개념

- 폴리머 전해질 탑재한 부스트 연료전지(PEMFC - Proton Exchange Membrane Fuel Cell)

기술 설명

- 신기술 도입해 에너지 수율을 30%에서 70%로 증가시킨 연료전지 특허 기술
- 분리된 챔버에서 수소, 산소의 산화 환원을 제어해 직류 전기 발전
- 차별화된 수소 관리법으로 연료전지의 성능 향상
- 과잉 생산된 에너지는 수소 분자로 변환
- 전력의 초과 생산분 낭비 방지

기술 특·장점

- 수소 투입량 대비 에너지 효율 크게 증가
- 지속 시간 증가
- 지속 가능한 에너지

희망 파트너 및 역할

- 에너지 발전소, 제품에 해당 기술을 도입할 기업
- 파트너는 당사의 기술 지원 받을 수 있음

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Fuel Cell: Method of controlling and maximizing the electric efficiency and the power output of a fuel cell

Summary

Profile type

Technology offer

Company's country

Italy

POD reference

TOIT20230403014

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[**Raysa GOIS**](#)

Term of validity

3 Apr 2023
2 Apr 2024

Last update

3 Apr 2023

General Information

Short summary

An Italian Company has successfully implemented a boosted fuel cell with polymer electrolyte (also known as PEMFC - Proton Exchange Membrane Fuel Cell) thanks to a new method of controlling and maximizing the electric efficiency and the power output of a fuel cell. Companies interested to adopt such a technology and to introduce it in their energy plants or products are sought for commercial agreements with technical assistance.

Full description

An Italian company has developed and patented a new Fuel Cell technology which represents the latest evolution of fuel cells with polymer electrolyte (also known as PEMFC - Proton Exchange Membrane Fuel Cell), and involves a sharp increase in energy yield, taking it from 30% to 70%.

This technology allows the controlled oxidation-reduction of hydrogen and oxygen in separate chambers, aimed at the production of electricity in the form of direct current. The energy thus obtained can be used for self-consumption, with considerable cost savings by a large user, or for sale on the market by an institutional electricity producer. The proposed technology also allows, thanks to a differentiated management of the supply gases, to increase the performance in terms of efficiency and duration of the PEM fuel cells.

The new Fuel Cell technology can be effectively used in the renewable energy supply chain. These energy sources are in fact by their nature inconstant and the excess energy produced when they are operational can be transformed into molecular hydrogen. H₂, in turn, can be used in a Fuel Cell in times of need when the renewable source is not

available.

In addition to renewable sources and water, molecular hydrogen can also be obtained through the reforming process from methane and other hydrocarbons. Companies interested to adopt such a technology and to introduce it in their energy plants or products are sought for commercial agreements with technical assistance.

Advantages and innovations

With the proposed technology there is a strong increase in energy yield for the same amount of hydrogen consumed, through an innovative redox process.

Thanks to the modulated and patented management of the supply gases, the technology allows an important improvement in the performance in terms of efficiency and duration of the PEM fuel cells.

The new Fuel Cell technology helps to solve the problems associated with the intermittence of renewable energy sources.

Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

IPR granted

Sustainable Development goals

• **Goal 7: Affordable and Clean Energy**

Partner Sought

Expected role of the partner

The production, storage and reuse of hydrogen in fuel cells allows not to lose the excess peaks of electricity production from renewable sources. Companies interested to adopt such a technology and to introduce it in their energy plants or products are sought for commercial agreements with technical assistance.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **SME <=10**
- **SME 11-49**
- **Big company**
- **SME 50 - 249**

Dissemination

Technology keywords

- **004002001 - Fuel cell, hydrogen production**

Targeted countries

- **World**

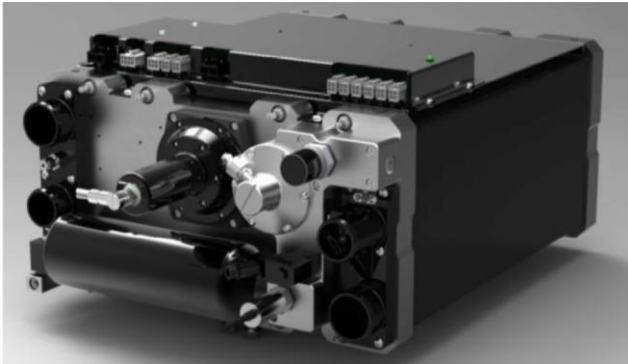
Market keywords

- **06010003 - Energy for Industry**
- **06009 - Energy Distribution**
- **06007001 - Other energy production**
- **06003008 - Other alternative energy**

Sector groups involved

Media

Images



[Fuel cell](#)



[Fuel Cell](#)



공항과 산업 현장의 전기 관리를 위한 장기 에너지 저장 솔루션

(BONL20230615021)

개발 국가	네덜란드	프로필 타입	Business Offer
개발 단계	시장 진출	지식재산권 현황	Secret know-how
거래 유형	상업 계약	유효 기간	~14 Jun 2024

기술 개념

- 공항과 산업 현장의 전기화 위한 지속 가능한 에너지 장기 저장 솔루션

기술 설명

- Iron flow battery 기반 에너지 장기 저장 솔루션
- 리튬, 코발트, 바나듐이 아닌 철, 소금, 물로 구성된 배터리
- 재활용 가능한 수성 배터리
- 일반 배터리 대비 67% 낮은 이산화탄소 배출
- 보다 안전한 전해액 사용
- 성능 저하없는 20년 이상 작동 수명

기술 특 · 장점

- 뛰어난 지속성-용량 감소 및 성능 손실 없음, 재활용 가능
- 안전-인증된 기술, 무독성, 열폭주 없음
- 경제적-저렴, 낮은 유지보수 비용, 낮은 저장비용 (Low levelized cost of storage (LCOS) per kilo watt hour (kWh))

희망 파트너 및 역할

- 공항 및 산업 현장에서의 전기화 관리자
- 파트너에게 전기화 및 탄소 저감을 위한 지원 제공

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

A Dutch SME specialized in long-duration energy storage solutions is looking for commercial agreements with responsible electrification managers at airports or industrial sites

Summary

Profile type

Business Offer

Company's country

Netherlands

POD reference

BONL20230615021

Profile status

PUBLISHED

Type of partnership

Commercial agreement

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

15 Jun 2023
14 Jun 2024

Last update

15 Jun 2023

General Information

Short summary

A Dutch SME is a project developer of sustainable long-duration energy storage solutions for electrification of airports or industrial sites. Long-duration storage is critical to create a decarbonized grid powered by fluctuating renewable energy. The storage solutions are based on iron flow battery technology. The Dutch SME is looking for commercial agreements with responsible electrification managers at airports or industrial sites.

Full description

An internationally oriented Dutch SME is experienced in developing long-duration energy storage solutions based on iron flow battery technology. The experiences are realized with proven installations at the biggest airport in the Netherlands and different industrial sites in Europe.

The mission of the SME is to accelerate global decarbonization by providing safe, sustainable, long-duration energy solutions that powers communities, industries and businesses with clean, renewable energy anytime and anywhere it is needed.

Long-duration energy storage is critical to create a decarbonized smart or micro grid powered by fluctuating renewable energy (wind, solar, biomass).

The long-duration energy storage solution is based on the implementation of the iron flow battery technology.

The main characteristics for iron flow battery technology are:

- The batteries are sustainable, safe, water-based, non-hazardous, fully recyclable at end of life and have a low carbon footprint. 67% lower CO₂ footprint compared to other battery types. The electrolyte chemistry poses low risks to installers, end users, or the environment.
- Proven second generation technology with an operating life of more than 20 years without capacity degradation of the (dis)charge process. Also no self-discharge.
- The batteries are composed of earth-abundant iron, salt and water for its electrolyte. Use of earth-abundant resources ensures a secure, reliable supply chain with no reliance upon critical minerals like Lithium, Cobalt and Vanadium.
- The batteries can deliver 10-12 continuous hours of energy.
- The batteries are scalable both from a power as capacity point of view.
- The flow technology stabilizes the grid and enables distributed generation (photovoltaics, wind). Excess renewable production is stored and shifts to delivery of energy to when it is needed.
- Easy operation and maintenance that offers unmatched cost, sustainability and guaranteed performance.
- Certified technology for grid-connected energy storage systems.
- The iron flow battery technology results in a more flexible non-lithium storage that is better suited for the grid and the environment.

The Dutch SME is looking for commercial agreements with responsible electrification managers at airports or industrial sites. The responsible electrification manager can be a sustainability manager, a project manager, a grid manager or a manager of a small airport or an industrial site.

Advantages and innovations

A number of advantages regarding durability, safety and economics are:

Durability

- No capacity fade
- No cycling limits
- No performance loss
- Recyclable installations at end of life.

Safety

- No toxic chemistry
- Inherently safe
- No thermal runaway
- No need for extra fire suppression equipment
- Certified technology

Economics

- Low acquisition costs.
- Minimal annual operations and maintenance costs.
- Lowest levelized cost of storage (LCOS) per kilo watt hour (kWh).

Technical specification or expertise sought

Stage of development

Already on the market

IPR Status

Secret know-how

Sustainable Development goals

- **Goal 7: Affordable and Clean Energy**
- **Goal 11: Sustainable Cities and Communities**

Partner Sought

Expected role of the partner

The Dutch SME is looking for commercial agreements with responsible electrification managers at airports or industrial sites. The responsible electrification manager can be a sustainability manager, a project manager, a grid manager, a facilities manager or a manager of a small airport or an industrial site.

As described, the function name of the electrification manager may vary depending on the site where the long-duration energy storage solution is needed.

The role of the partner is providing the specification of the requirements and further support to come to electrification

and decarbonisation of the local site.

Type of partnership

Commercial agreement

Type and size of the partner

• **SME <=10**

Dissemination

Technology keywords

• **04001003 - Storage of electricity, batteries**

Market keywords

• **006005006 - Co-generation**

• **06002003 - Power grid and distribution**

• **06003010 - Distributed power and grid connection**

Targeted countries

• **World**

Sector groups involved

-기타 기술-

공기·가스 필터링 솔루션 회사가 배출량 감소 신기술 테스트 위한 전략적 파트너 물색 (TOBG20220801042)

개발 국가	불가리아	프로필 타입	Technology Offer
개발 단계	실험 완료	지식재산권 현황	적용됨
거래 유형	투자 계약	유효 기간	~4 Aug 2023

기술 개념

- 선박 및 항만 장비에 장착해 전체 배출물의 90~98%를 절감할 수 있는 공기·가스 필터링 기술

기술 설명

- 모듈식 단일 소형 장치
- 블랙카본, 재, 휘발성 유기 화합물(VOC), 이산화탄소 및 기타 가스를 동시에 포집할 수 있는 유일한 솔루션
- 경계층 관리, 정적 터빈, 신형 물 미립자화 장치, 정적 터빈, 및 유체역학을 결합한 첨단 기술
- 해당 신기술의 파일럿 테스트를 구현할 전략적 파트너 요구

기술 특 · 장점

- 블랙카본, 재, 휘발성 유기 화합물(VOC), 이산화탄소를 비롯한 다양한 가스를 동시에 수집
- 단일 소형 모듈로, 모든 크기의 선박과 모든 유형의 항만 설비에 장착 가능
- 30~40년의 긴 수명

희망 파트너 및 역할

1. 투자 협의

- 파트너: 전략적 투자자(자기자본) 및 공공 투자자
- 항만 당국 및 산업 회사(선박 소유자, 조선소, 항만 사업자 등)
- 파일럿 테스트 실현을 위한 재정적 지원을 제공할 능력

2. 기술지원을 포함한 상업 계약

- 파일럿 테스트를 위한 시설 제공이 가능한 선박 또는 항만 장비를 보유한 산업 파트너 (선박 소유자, 조선소, 항만 사업자 등)

3. 기타 잠재적 파트너

- 각종 오염물질의 배출량을 감소시켜야 하는 발전소 및 회사

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Bulgarian company, producer of air and gas filtering solutions, is looking for strategic partners to implement pilot testing of novel technology for cutting emissions from the maritime companies (ships and ports) by 98%

Summary

Profile type	Company's country	POD reference
Technology offer	Bulgaria	TOBG20220801042
Profile status	Type of partnership	Targeted countries
PUBLISHED	Investment agreement Commercial agreement with technical assistance Research and development cooperation agreement	<ul style="list-style-type: none"> • Greece • Norway • Germany • Spain • Sweden • Estonia • France • Portugal
Contact Person	Term of validity	Last update
<u>Raysa GOIS</u>	4 Aug 2022 4 Aug 2023	4 Aug 2022

General Information

Short summary

A company from Bulgaria, creator of new air and gas filtering technologies, is developing a technological solution for capturing emissions from ships and ports, that cuts 90-98% of all emissions combined, with a single compact unit, re trofittable to any size of vessel & port equipment. The company is looking for cooperation for pilot testing of the technology under: Commercial agreement with technical assistance / Investment Agreement/ Research and Development Cooperation agreement

Full description

Bulgarian Company, active in the field of air and gas filtering technologies and experienced in technologies to improve the cabin air quality in private jets and ambient air quality for commercial aircraft fleet, is currently developing a new solution for reducing emissions from the maritime industry (ships and port) by 98%.

Maritime companies are forced to cut emissions in order to comply with EU requirements and need to choose between options that are either expensive, or cannot retrofit the whole fleet, or incur massive operational costs, or biofuels that compete for scarce agricultural land, or solutions that are not yet fully developed (ex: hydrogen).

The new technology will make it possible for shipowners and port operators to keep up to the EU requirements and comply with the Agenda 2050 in an efficient and sustainable way – with low acquisition and operational costs.

The solution is by 6-8 times lower in both, the capital and operational expenses compared to the existing solutions such as scrubbers, catalyst, electrification, hydrogen, biofuels and fuel additives.

The main advantage of the technology is that it is the only solution, able to collect Black Carbon, Ash, Volatile organic compounds (VOC), Carbon Dioxide (CO₂), and other gases simultaneously.

The design is modular and fits into one compact body, retrofittable to small, mid-size and large vessel and to any type of port's equipment, with a life span of 30-40 years.

The technology for its Maritime applications is tested in lab, then on a diesel-run forklift, pivoted and is entering its final Pilot stage before available for demonstration.

A Pilot would take approximately 5-6 months, including all phases – agreement, customized design and specifications, production, installation, outcome measurement, and assessment.

The company is now looking for Strategic partners (ship owners, ship repairing, port operators, diesel engine manufacturers) in Maritime sector to run the First Pilot and to demonstrate the product performance, as well as to assess the business viability in detail.

The following types of cooperation are sought:

Commercial agreement with technical assistance: Looking to set up an agreement for a Pilot installation where sharing resources is essential, shared Pilot funding (50/50 split), testbed facilities - marine vessel or port equipment).

Research and Development Cooperation agreement:

Specific technological capacities and expertise are sought for the assessment of the solution and for potential further co-development of a range of products.

Investment Agreement: The company is raising equity investment to speed up the Pilot execution and run multiple Pilots simultaneously and to grow.

Partners from all countries are welcomed, including countries with traditions in maritime industry Greece, Norway, France, Spain, Portugal, Finland, Sweden, Netherlands, Denmark, Germany, Poland, Estonia and practically every other country.

Advantages and innovations

The main advantage of the technology is that it is the only solution, able to collect Black Carbon, Ash, Volatile organic compounds (VOC), Carbon Dioxide (CO₂), and other gases simultaneously.

The technology is designed modular and fits into one compact body, retrofittable to small, mid-size and large vessel and to any type of port's equipment, with a life span of 30-40 years.

The technology borrows some of its key elements from Aviation. Its working principle is based on modular design where each module is capturing specific pollutant, leaving less pollutants for the next module, making its job easier.

The innovative approach results in combining technologies like: boundary layer management, static turbines, new type of water atomization units, static turbines and air flow well thought labyrinth based on fluid dynamics and turbulent air flows science.

Technical specification or expertise sought

Industrial partners, capable to provide the testbed marine vessel or port equipment (Ship owners, Shipbuilding, Shipyards, Marine Port Operators, Cruise liners)

Partners with capability to assess the solution and potentially further co-develop a range of products

Stage of development

Lab tested

Sustainable Development goals

- **Goal 13: Climate Action**
- **Goal 7: Affordable and Clean Energy**
- **Goal 9: Industry, Innovation and Infrastructure**

IPR Status

IPR granted

Partner Sought

Expected role of the partner

Investment Agreement:

Role of the partner: Strategic investor (equity capital)

Private or Public Investor

Port authorities and/ or Industrial companies (Ship owners, Shipbuilding, Shipyards, Marine Port Operators, Cruise liners), able to provide financial assistance for the realisation of the pilot testing;

Commercial agreement with technical assistance:

Role of the partner: Providing facilities for testing

Industrial partners, capable to provide the testbed marine vessel or port equipment (Ship owners, Shipbuilding, Shipyards, Marine Port Operators, Cruise liners)

Other potential partners, include: Power Plant, Construction or other company that needs to cut emissions of Black Carbon, Ash, Volatile organic compounds (VOC) and GHG (Green house gasses)

Research and development cooperation agreement:

Role of the partner: R&D, Technological expertise

Partners with capability to assess the solution, potentially further co-develop a range of products, and ideally should have dedicated Sustainability budgets and a team to actively collaborate in a hand-on journey aiming at positive outcome.

Type of partnership

Investment agreement

Commercial agreement with technical assistance

Research and development cooperation agreement

Type and size of the partner

- **Big company**
- **Other**
- **SME 50 - 249**
- **SME 11-49**
- **SME <=10**
- **R&D Institution**

Dissemination

Technology keywords

- **02009011 - Air pollution control for cars and transport**
- **10002003 - Capture and Storage of CO2**
- **010002001 - Air Pollution/Treatment**
- **10002004 - Climate Change mitigation**
- **10002002 - Outdoor Air Pollution/Treatment**

Market keywords

- **08004001 - Air filters and air purification and monitoring equipment**
- **08004004 - Other pollution and recycling related**

Targeted countries

- Greece
- Norway
- Germany
- Spain
- Sweden
- Estonia
- France
- Portugal

Sector groups involved

- **Maritime Industries and Services**

히트펌프와 에어컨용 에너지 절감 부품 개발 (TODE20230524004)

개발 국가	독일	프로필 타입	Technology offer
개발 단계	개발 중	지식재산권 현황	N/A
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~24 May 2024

기술 개념

- 최대 30%의 에너지 회수율을 보이는 효율적 통합 냉매 시스템 기술 보유
- 현재 히트펌프 부품 최적화 연구개발을 상호 지원할 파트너 모색 중

기술 설명

- 최대 20kW 출력의 가정용 냉난방 시스템용 통합 스크롤 압축기, 신장기 개발 진행 중
- 독일 AXEL Energy accelerator programme 참여 중
- 팽창 밸브 대신 압축기와 스크롤 팽창기를 활용해 10~30% 에너지 소비 감소
- CNC 가공 과정 생략을 위해 다양한 재료와 제어법을 도입을 통한 압축기-팽창기 통합 시스템 제조비 인하 목표

기술 특 · 장점

- 높은 잠재력: 유럽 내 가정용 히트펌프 시장 연간 35% 이상 성장률
- 에너지 회수를 통한 SEER(계절 에너지 효율비)는 신식 주택에서 13%, 구형 주택에서 22% 증가할 것으로 추정
- 화재 위험과 복잡한 구조를 가진 오일 히터를 대체 가능
- 하이브리드(플라스틱, 세라믹) 공정으로 부품 수명 증가, 제조비 절감

희망 파트너 및 역할

- 냉난방 기기 부품 제조사
- 세라믹 베어링 제조사
- 스크롤 압축기 개발 경험 보유 연구소
- 파트너 역할: 최적의 부품 설계 및 개발, 공동 검토, 시제품 테스트 등

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

German energy startup developing efficient and cost-effective components for heat pumps and air conditioning would like to join a consortium submitting a proposal under Horizon Europe 2023-2024 Climate, Energy and Mobility (HORIZON-CL5-2023-D3-02-04)

Summary

Profile type	Company's country	POD reference
Technology offer	Germany	TODE20230524004
Profile status	Type of partnership	Targeted countries
PUBLISHED	Commercial agreement with technical assistance Investment agreement Research and development cooperation agreement	• World
Contact Person	Term of validity	Last update
Raysa GOIS	25 May 2023 24 May 2024	25 May 2023

General Information

Short summary

German startup offers innovative ideas, a First Principles perspective, agile hardware development, scripting/software Development, and proprietary innovations regarding a cost-effective integrated refrigerant cycle with energy recovery of up to 30% and many other advantages. The startup seeks partners for mutual support of R&D activities in the field of heat pump component optimization. Above all, they are interested in joining a consortium submitting a proposal under HORIZON-CL5-2023-D3-02-04.

Full description

The German startup focuses on the development of integrated scroll compressors and expanders for cooling and heating systems for domestic applications up to 20kW and is currently part of the AXEL Energy accelerator programme in Germany.

Across the EU, heating and cooling account for more than 60 percent of energy consumption, with only a quarter coming from renewable sources. The share of heat pumps in the EU is increasing by >35 percent annually, while the energy demand for space cooling can increase fivefold worldwide by 2050 without more efficient solutions.

The compressor as the most expensive part and main driver of greenhouse gas emissions is key to reducing the environmental footprint of heat pumps. Current experiments show that a reduction of energy consumption between 10 and 30 percent could be achieved, when using scroll expanders integrated with the compressors instead of separate expansion valves. Due to the high cost of scroll expanders, this has not yet been made commercially viable for domestic applications. The new method combines various materials and thermal control and aims to achieve superior clearances without CNC-machining thus enabling a reduction in manufacturing cost by as much as 50 percent for the scrolls, placing the compressor-expander system at a similar manufacturing cost as a regular scroll compressor. Additional opportunities for research that are enabled by these innovations are: integration of an economizer, integration of the condenser, oil-free operation, wear-in design, mechanical power-regulation (removing the need for an inverter), and more.

The focus market of the compressor expander system is the European heat pump market for residential, with a growth rate of >35 percent yearly. In addition, the electric automotive industry, the global cooling industry as well as the pharmaceutical industry show large market potential.

The startup seeks a consortium submitting a proposal under the Horizon Europe call HORIZON-CL5-2023-D3-02-04 (Innovative components and configurations for heat pumps) where they can participate in general optimization of heat pump turbo machinery components, and would like to take over the design, development, and quality management of their integrated compressor-expander system, as well as publication of some related research results such as advanced thermal control of scroll compressors, ceramic based rotor coupling and multi-stage vapour injection.

However, they would also consider bilateral co-operations under a technical or investment co-operation agreement.

Advantages and innovations

Due to energy recovery, SEER (Seasonal Energy Efficiency Ratio) has been estimated to increase by 13 for new homes and 22 percent renovations.

Additionally, an oil free application is pursued which would remove the need for an oil heater reducing system complexity and would reduce energy consumption even more.

The combination of hybrid materials including plastics or ceramics would enable a more efficient production process, which leads to a decrease in manufacturing costs of approximately 50 percent, while increasing theoretical lifetime.

The inverter free power control can save additional 3 - 11 percent of energy and remove the reliance on international suppliers of power control solutions.

It is planned to design the system for refrigerant R290, but it could theoretically be adapted to refrigerant R744 with additional R&D.

Technical specification or expertise sought

Stage of development

Under development

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 7: Affordable and Clean Energy**
- **Goal 13: Climate Action**
- **Goal 11: Sustainable Cities and Communities**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

- Type of partner sought: research and venture partners with expertise in: scroll compressor design, material ageing, heat pump design, heat exchanger manufacture, ceramic oil-free bearings, high-precision injection moulding, effects of overexpansion/undercompression in positive displacement pumps and/or polymer-metal and polymer-ceramic hybrid structure overmolding.

- Specific area of activity of the partner:

- i. Manufacturer of heat pumps or heat pump components

- ii. Manufacturer of ceramic bearings
- iii. Material Science Research Institute
- iv. Mechanical Engineering Research Institute with previous exposure to scroll compressor development

- Tasks to be performed by the partner sought/Expected role of the partner:

- i. Design and optimization of manufacturing processes
- ii. Development of subcomponents
- iii. Peer Review of research & development activities
- iv. Testing of components in the field or in the lab

Type of partnership

Commercial agreement with technical assistance

Investment agreement

Research and development cooperation agreement

Type and size of the partner

- **SME 11-49**
- **University**
- **SME 50 - 249**
- **R&D Institution**
- **SME <=10**

Dissemination

Technology keywords

- **004002006 - Heat pump, cooling technologies**
- **04002007 - Heat pump**
- **004002007 - Heating, ventilation**
- **04002008 - Cooling technologies**

Targeted countries

- **World**

Market keywords

- **08004004 - Other pollution and recycling related**
- **009007006 - Other construction and building products related**
- **06010001 - Energy for private/domestic housing**

Sector groups involved

- **Renewable Energy**
- **Construction**

개발 국가	독일	프로필 타입	Technology offer
개발 단계	실험 완료	지식재산권 현황	Secret know-how
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~18 Nov 2023

기술 개념

- 건물 전면에 해당 지역 식물군 배치해 CO2 포집 및 실내 온도 환경을 쾌적하게 유지

기술 설명

- 완공된 건물과 건설 중인 건물 모두에 추가 가능
- 친환경 건축·건설 산업과 지속 가능한 도시 개발
- EU 분류 체계 부합
- 효율적 냉난방에 도움
- 근방의 생물다양성에 도움

기술 특 · 장점

- 디지털화된 BIM 기반 설계
- 모듈식 및 확장 가능한 경량 구조
- 신속하고 경제적인 설치
- 물 소비 및 유지보수 비용 절감
- 폭우 현상, 열, 소음 및 CO2 배출과 같은 도시 공해 감소에 도움

희망 파트너 및 역할

- 지속 가능성 중심 투자자
- 건설 및 부동산 관련 기업
- 생물 다양성에 관한 EU 분류법을 충족하기 위해 CO2 배출량 감소하려는 투자자
- 당사의 프로토타입 구현을 위한 자체 부동산 및 건물 보유 기업

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

An enterprise from northern Germany is searching for partners who want to increase property value and improve natural climate in buildings while reducing their CO² footprints at the same time

Summary

Profile type

Technology offer

Company's country

Germany

POD reference

TODE20221118006

Profile status

PUBLISHED

Type of partnership

**Commercial agreement with
technical assistance
Investment agreement**

Targeted countries

• World

Contact Person

[**Raysa GOIS**](#)

Term of validity

**18 Nov 2022
18 Nov 2023**

Last update

18 Nov 2022

General Information

Short summary

The enterprise from northern Germany developed an innovative construction system for building fronts that can be added to most of portfolio properties. The additive building front comes with regional flora which leads to the buildings' CO² footprint being reduced, climate in the building is improved and biodiversity in the area is enhanced. The innovative system shows that smart and sustainable solutions can go hand in hand with economic efficiency and the interests of project design.

Full description

The northern German enterprise developed an innovative lightweight construction system for building fronts that can be added to most of portfolio properties. The additive building front comes with regional flora which leads to the buildings' CO² footprint being reduced, climate in the building is improved and biodiversity in the area is enhanced.

Main advantage is the construction systems' ability of being added to portfolio properties, as well as to new buildings which are just under construction. The new and innovative system for building fronts not only enables a transformation towards a more green architecture and construction industry and a sustainable urban development - it also fulfils parts of EU taxonomy.

These facades enable planting for vegetation, contribute to comfortable and increasingly energy-efficient climate

conditions in- and outside the building as well as to an enriched biodiversity in the direct environment. Once implemented, the system is sustainable in itself and demands an absolute minimum of permanent care.

The northern German enterprise is searching for cooperation partners to implement first prototypes. The cooperation partner should be interested in increasing property value and creating quality urban spaces, by supporting biodiversity in a more sustainable and greener direct environment.

Advantages and innovations

- Fulfils EU regulations on taxonomy
- Highly digitized and BIM-based design
- Modular and scalable lightweight structure
- Fast and economically priced implementation due to its highly miscellaneous architectural character
- Reduced water consumption and maintenance
- Decrease of climate consequences in cities such as heavy rain phenomena, heat, noises and CO2 emissions

Technical specification or expertise sought

Stage of development

Lab tested

Sustainable Development goals

- **Goal 3: Good Health and Well-being**
- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 13: Climate Action**

IPR Status

Secret know-how

Partner Sought

Expected role of the partner

For the realisation of the prototype future partners should fulfil at least one of the following criteria:

- Impact and sustainability-driven investors
- Enterprises located in the building industry and estate economy
- Enterprises with commercial premises or warehouses for supporting the project financially and open up partial façade areas to install real time research & development technology

A long-term cooperation is appreciated and explicitly searched for.

To sum up there are various ways for supportive cooperation:

-Financial investors seeking to meet upcoming EU taxonomy on biodiversity, improve their sustainability and limit their CO2 footprint
- Supply of own property to implement the prototype, as well as enterprises located in the building and real estate economy

Type of partnership

Commercial agreement with technical assistance

Investment agreement

Type and size of the partner

- **University**
- **SME 11-49**
- **Big company**
- **SME 50 - 249**
- **SME <=10**

Dissemination

Technology keywords

- **002006001 - Building Materials, Components and Methods**
- **004006004 - Thermal insulation, energy efficiency in buildings**
- **010002001 - Air Pollution/Treatment**
- **10002004 - Climate Change mitigation**
- **02001 - Design and Modelling / Prototypes**

Targeted countries

- **World**

Market keywords

- **06006001 - Thermal insulation**
- **09007001 - Construction companies**
- **009007001 - Construction**
- **09007002 - Manufacture of construction materials, components and systems**
- **09007003 - Distribution of building products and systems**

Sector groups involved

- **Environment**
- **Renewable Energy**
- **Construction**

개발 국가	이탈리아	프로필 타입	Technology offer
개발 단계	시장 진출	지식재산권 현황	N/A
거래 유형	투자 협의	유효 기간	~17 Mar 2024

기술 개념

- 계통연계 필요없이, 태양광과 풍력을 사용하는 원격 제어형 하이브리드 모듈 가로등

기술 설명

- 내장 리튬 배터리, 풍력 터빈, 최대 4개 태양광 패널로 구동
- 가로등 기둥 내부에 모든 전자 부품 탑재
- 카메라 또는 전기 자전거와 스쿠터 충전이 가능한 220V 소켓 탑재 가능
- 드론 충전 시스템 탑재 (드론을 기지로 돌려보내지 않고, 도시 곳곳에서 충전 가능)

기술 특 · 장점

- 다재다능
- 케이블 설치를 위한 굴착 과정 불필요
- 웹 대시보드를 통한 원격 제어
- 전력 저장 가능
- 사물인터넷 기능

희망 파트너 및 역할

- 지역 내 관련 법규에 능통한 파트너
- 재생 에너지 솔루션에 적극적인 파트너
- 역할: 당사의 가로등 보급

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Hybrid modular streetlight serving as a public charging point

Summary

Profile type

Technology offer

Company's country

Italy

POD reference

TOIT20220318024

Profile status

PUBLISHED

Type of partnership

Investment agreement
Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

18 Mar 2022
17 Mar 2024

Last update

10 Mar 2023

General Information

Short summary

An Italian company has developed a hybrid modular smart pole/streetlight that using sun and wind does not need to be grid-connected, with remote control and a high customization level. With a total power of almost 2kW and storage up to 10kWh it's a small power generator able to provide 24-48-220V power to different devices. The company is seeking for commercial agreements with technical assistance and joint venture agreements to enter new foreign markets.

Full description

An Italian company specialized in robotics and renewable energy products developed a streetlight capable of supporting up to 4 photovoltaic panels, a wind turbine and lithium batteries inside (all the electronics are contained in the pole itself that acts as an electrical box). The pole has the possibility of having video surveillance systems (cameras) on board and solutions for recharging e-bikes and e-scooters which means having 220V sockets onboard to power 220V devices related to the world of soft mobility. Another project is to have systems for recharging drones on board, a very useful concept for allowing the recharging of drones in various points of the cities without having to return them to the "base". The development logic is also to create smart islands where the self-sufficient pole (therefore that does not require wiring from the electrical network) can power other 220V devices with limited wiring to the island, having a lot of power onboard.

Interested in introducing the technology in new markets the developer is looking for foreign partners having a good knowledge of local market rules and regulations interested in signing a commercial agreement with technical assistance (the Italian company will offer technical support in the technology transfer) or to create a joint venture.

Advantages and innovations

A multifunction system, no grid and no excavation for cabling, remote control through the web dashboard, energy storage, IoT devices available, modularity and containing box system.

Technical specification or expertise sought

Stage of development

Already on the market

Sustainable Development goals

• **Not relevant**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

Commercial agreement with technical assistance: the company is seeking partners active in renewable energy solutions with a good knowledge of local market rules and regulations and technical support services are offered. Investment agreements for adapting the device to specific market segments and distributing it are sought as well.

Type of partnership

Investment agreement

Commercial agreement with technical assistance

Type and size of the partner

• **SME 50 - 249**

Dissemination

Technology keywords

- **04005004 - Photovoltaics**
- **04005008 - Wind energy**
- **04001003 - Storage of electricity, batteries**

Targeted countries

- **World**

Market keywords

- **03001009 - Other electronics related (including keyboards)**
- **06003002 - Photovoltaics**
- **03001007 - Circuit boards**
- **03001008 - Display panels**
- **06003003 - Wind energy**

Sector groups involved

- **Renewable Energy**

Media

Images



[Hybrid modular streetlight](#)



[Smart pole at night](#)



[Smart pole](#)

개발 국가	네덜란드	프로필 타입	Technology offer
개발 단계	개발 중	지식재산권 현황	N/A
거래 유형	기술지원을 포함한 상업 계약	유효 기간	~6 Jan 2024

기술 개념

- 그린 암모니아 분해 기술을 통한 동력 장치 발전 시스템
- 암모니아를 동력 장치 연료로 사용하는 시스템

기술 설명

- 아이슬란드의 풍부한 재생 에너지 자원에서 그린 암모니아 생산을 계획
- 이를 위한 고온·고체 산화물 기술이 요구됨
- 암모니아는 수소 운반체 및 지속 가능한 연료로써 EU 수출 예상
- 그린 암모니아 및 그 혼합물의 수요가 있는 북해 인근 구매자와의 연결 모색 중

기술 특·장점

- SOE/SOFC 기술 도입으로 매우 높은 연료 대 전력 효율 달성 가능
- 그린 암모니아는 우수한 액체 수소 운반체
- 탄소 배출없는 저렴한 연료

희망 파트너 및 역할

- 기존 에너지 시스템에 그린 암모니아 솔루션을 통합
- 그린 암모니아 구매 합의

문의

소 속 : (주)델타텍코리아 기술무역파트

담당자 : 엄예빈

연락처 : 02-3278-2711

Dutch project developer integrating green ammonia systems for heat and hydrogen production looking for sites where such technology could be applied

Summary

Profile type

Technology offer

Company's country

Netherlands

POD reference

TONL20221212026

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance

Targeted countries

• World

Contact Person

[Raysa GOIS](#)

Term of validity

6 Jan 2023
6 Jan 2024

Last update

6 Jan 2023

General Information

Short summary

Looking for clients that want to host green ammonia cracking technology or systems for direct use of ammonia as fuel for direct heat and combined heat and power units.

Full description

Green ammonia production is planned at sites with abundant renewable energy sources as part of an existing joint venture with Icelandic partners. The ammonia is expected to be exported to the EU for use as carbon-free fuel (in e.g. mobility or combined heat and power systems) and carrier of hydrogen. For energy production, high temperature Solid Oxide technology is particularly relevant. Connections to off-takers of green ammonia, green hydrogen or green ammonia and hydrogen mixtures around the North Sea are also being sought. Open to partner up for innovative projects (e.g. Horizon Europe).

Advantages and innovations

Green ammonia is an excellent liquid hydrogen carrier and carbon-free fuel, promoting cheap fuel distribution across Europe. Very high fuel-to-power efficiency can be achieved using SOE/SOFC technology. Project development, green ammonia supply and ammonia technology can be offered by a single business partner.

Technical specification or expertise sought

Partners that want to make their energy system more efficient and sustainable are being sought, as well as partners looking for ammonia sources (mobility or chemical processing). Technology partners with expertise on direct combustion of ammonia for mobility, or alternative ammonia cracking technology are also sought.

Stage of development

Under development

Sustainable Development goals

• **Goal 13: Climate Action**

IPR Status

No IPR applied

Partner Sought

Expected role of the partner

Partners are expected to offer commercial agreements for integrating green ammonia-based solutions in their energy system. Purchase agreements on green ammonia are also being sought.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

• **SME 50 - 249**

• **SME 11-49**

• **Other**

• **Big company**

Dissemination

Technology keywords

- **04002012 - Other energy related machinery**
- **04008001 - Combustion, Flames**
- **04002010 - Combined heat and power (CHP) engines**
- **004002001 - Fuel cell, hydrogen production**
- **04008002 - Fuels and engine technologies**

Targeted countries

- **World**

Market keywords

- **06003009 - Biomass and Biofuels**
- **06010003 - Energy for Industry**
- **06003006 - Combined heat and power (co-generation)**
- **06007001 - Other energy production**
- **06003008 - Other alternative energy**

Sector groups involved

- **Renewable Energy**
- **Energy-Intensive Industries**

2023 Hot-Tech Watch

발행처: (주)델타텍 코리아

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