



## Research Report (Initiation of Coverage)



**Unique product with no competing technologies in a total market valued at over USD 6 Trillion**

-

**Massive sales revenues expected in the next few years**

-

**Worldwide distribution network established. International orders and MOU signed. Tested, Certified and Patented technology with high net margin**

**Target Price: 1.90 CAD (1.43 USD; 1.30 €)**

**Rating: BUY**

#### IMPORTANT NOTE:

Please take note of the disclaimer/risk warning, as well as the disclosure of potential conflicts of interest as required by section § 85 WpHG und Art. 20 MAR on page 39

Note on research as a "minor non-monetary benefit" according to the MiFID II regulation: This research meets the requirements for being classified as a "minor non-monetary benefit". For more information, see the disclosure under "1. Research under MiFID II"

Date and time of completion of this research: 20/09/2019 (12:00)

Date and time of first distribution: 20/09/2019 (13:00)

Target price valid until: max. 31/12/2020

## DYNACERT INC. \*5a,5b,11

**Rating: BUY**  
**Target price: 1.90 CAD**  
**(1.43 USD; 1.30 EUR)**

Current price: 0.49  
16/09/2019 / TSX / 18:20  
Currency: CAD

### Key Data:

ISIN: CA26780A1084  
WKN: A1KBAV  
TSX.V: DYA  
OTCQB: DYFSF  
DAX: DMJ  
Number of shares<sup>3</sup>: 349.112  
Marketcap<sup>3</sup>: 171.06  
EV: 171.48  
<sup>3</sup> in m / in m CAD / fully diluted  
Free float: 24%

Primary listing: TSX-Venture  
Secondary listing: Frankfurt

Accounting Standard:  
IFRS

FY End: 31/12/

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\* possible conflicts of interest  
on page 39

### Company Profile

Sector: automotive industry  
Focus: Carbon Emission Reduction Technology

Headquartered in Toronto

Management: James Payne, President & CEO; Wayne Hoffman, Chairman; Robert Maier, COO; Jean-Pierre Colin, Director and Corporate Secretary



dynaCERT Inc. manufactures and distributes Carbon Emission Reduction Technology for use with internal combustion engines. As part of the growing global hydrogen economy, their patented technology creates hydrogen and oxygen on-demand through a unique electrolysis system and supplies these gases through the air intake to enhance combustion, resulting in lower carbon emissions and greater fuel efficiency. The technology is designed for use with many types and sizes of diesel engines used in on-road vehicles, reefer trailers, off-road construction, power generation, mining and forestry equipment, marine vessels and railroad locomotives.

P&L in USD m FY	31/12/2018	31/12/2019e	31/12/2020e	31/12/2021e
Sales	0.16	4.62	62.40	223.90
EBITDA	-16.75	-16.56	0.11	36.45
EBIT	-16.75	-16.56	0.11	36.45
Net income	-16.63	-16.68	0.11	36.71

Key figures in USD m	31/12/2018	31/12/2019e	31/12/2020e	31/12/2021e
EPS	-0.07	-0.05	0.00	0.11
Dividends per share	0.00	0.00	0.00	0.00

Key figures	31/12/2018	31/12/2019e	31/12/2020e	31/12/2021e
EV/Sales	1082,02	37,14	2,75	0,77
EV/EBITDA	-10,24	-10,36	1523,56	4,70
EV/EBIT	-10,24	-10,36	1523,56	4,70
PE	-10,29	-10,26	1508,99	4,66
PB	17,08			

### \*\* Last research by GBC:

Date: publication/target price in CAD/rating

\*\* The research studies indicated above may be viewed at [www.gbc-ag.de](http://www.gbc-ag.de), or requested at GBC AG, Halderstr. 27, D86150 Augsburg

### Financial calendar

11/12/2019: MKK – Münchner Kapitalmarkt Konferenz

## EXECUTIVE SUMMARY

- dynaCERT is a leading hydrogen technology company developing carbon emissions reduction and fuel economy solutions for diesel-powered combustion engines. The company has proven, proprietary and patented technologies. Their disruptive solution incorporates emissions reduction, fuel savings, carbon credit monetizing solutions as well as fleet management software, all in one product.
- The company addresses the needs to reduce NOx, COx and TCH emissions in order to comply with new-stage V environmental regulations with their HydraGEN™ line of products. These devices also improve the engine fuel efficiency, providing clients with a high ROI (return on investment).
- The company has established a worldwide sales network and has the potential to deploy its solutions in Canada, USA, Europe, South America, Mexico, Middle East and Asia. The company has already sold units to governments and private companies on three continents.
- dynaCERT has overcome critical engineering challenges and now has a complete line of products that, combined, can reach a total market of USD 6 trillion with no known direct competitor, including but not limited to industries such as transportation, rail, marine, oil/gas, stationary generators and mining.
- On this basis, we conservatively project the company to have yearly revenues of over USD 500M within the next seven years with a gross margin of close to 40%.
- The company's main product, HydraGEN™, costs between USD 6,200\$ and 8,000\$ and has an ROI of 9 - 18 months based on their fuel efficiency. The company has also partnered with a financial institution to offer a monthly payment solution for HydraGEN™ clients, limiting their capital expenditure for acquiring and installing dynaCERT products.
- The company has just received the ABE certification from Germany. This is a transformative step in the history of the company as they can now sell their products in Europe. Furthermore, the certificate is recognized in Asia, South America and the Middle East. With this crucial step made, we believe that the company can achieve massive sales in the next few years. The ABE certification also serves as a strong stamp of approval.
- The company has an assembly facility in Toronto, Canada, that can produce up to 12,000 units a month for a yearly total of 144,000 units. With a strong adoption rate within the next few years, we project the company to sell just under a thousand units in 2019, 10,000 in 2020 and over 30,000 by 2021.
- Accordingly, we project that the company will post total gross revenues of USD 4.6 million in 2019 USD 62.4 million in 2020 and USD 223.9 million in 2021.
- **Based on our DCF valuation, we have calculated a price target of 1.90 CAD (1.43 USD; 1.30 EUR). Against the background of the high upside potential, we assign a BUY rating.**

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## COMPANY

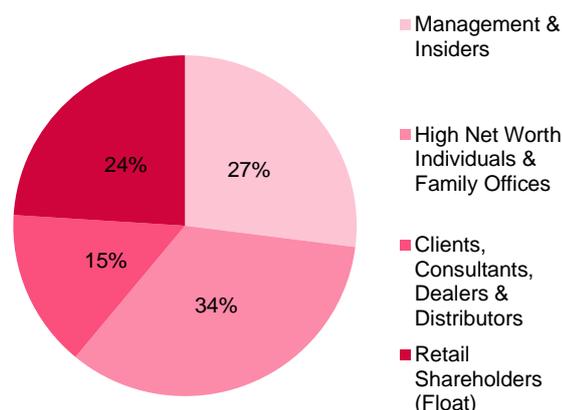
### Shareholder structure

Shareholders as of August 12, 2019	In %	In shares
Management & Insiders	27%	79,117,003
High Net Worth Individuals & Family Offices	34%	99,628,818
Clients, Consultants, Dealers & Distributors	15%	43,953,890
Retail Shareholders (Float)	24%	70,579,872
Total (undiluted)	100%	293,279,583

Sources: DynaCERT Inc., GBC AG

Common Shares	293,279,583
Warrants (@ \$0.25 - \$1.00)	30,636,039
Options (@ \$0.10 to \$0.94)	25,196,306

Exchanges: DYA-TSXV / OTCQB – DYFSF / FRA – DMJ



### Corporate structure

dynaCERT stands for dynamic “Combustion Emission Reduction Technology”. It is an R&D company that has been developing a specialized Carbon Emission Reduction technology for diesel engines for the past 15 years. The company’s research and development have led to a proprietary electrolysis solution that, in turn, have allowed the company to create the HydraGEN™, a real-time emission-reducing and fuel-saving device for diesel engine attachment. The company owns a patent for its electrolysis technology and its ECU chip controller.

#### dynaCERT Corporate structure

Operating as a holding company, dynaCERT owns one subsidiary, dynaCERT GmbH, registered in Germany. dynaCERT GmbH is responsible for the European market while the holding company controls operations in the rest of the world. dynaCERT was created through a “transfer of business operations” from Dynamic Fuel Systems Inc. in 2012. There is one assembly facility in Toronto, Canada, where their R&D operations are also concentrated. dynaCERT currently has a total of over 60 employees.

## Business Model

dynaCERT has a worldwide distribution network that serves end users in their local jurisdictions. The international sales are financially supported by Export Development Corporation of Canada, securing 90% of the financing for every unit sold outside Canada's borders. dynaCERT's geographical presence includes Austria, Bahrain, Bangladesh, Belgium, Bhutan, Brazil, Canada, Dubai, Egypt, Germany, Kuwait, India, Israel, Mexico, Myanmar, Nepal, Oman, Pakistan, Qatar, Saudi Arabia, Sri Lanka, Switzerland, UK, United Arab Emirates, and USA.

## Industry Presence and World Map of Distributors



Source: dynaCERT

dynaCERT has an established international footprint with units sold and installed in India, Europe, North America, Central America, Brazil and Saudi Arabia. The company's technology finds application in many industries. They have sold and installed their products in the mining, transportation, power generation, refrigeration and public transportation (government, etc.) industry, to name just a few.

## Range of Products and services offered

### HydraGEN TM – Fuel economy and emissions reduction solution

dynaCERT offers a complete line of products for diesel engines. Their solution is declined into 6 different HydraGEN TM models, which are adapted for different industries, engine sizes and mounting specifications. The company is establishing itself as the market leader in the technological reduction of emissions and fuel consumption in the world. Their product can be applied to any industry using diesel engines such as mining, long haul transportation, rail, marine, construction, refrigerated trucks and small trucks. All units are assembled at their Toronto manufacturing facility. They have a capacity of over 6,000 units monthly that could be raised to 12,000 units if needed. The company's product, HydraGEN TM, provides many advantages. It reduces fuel consumption, NOx emissions, CO emissions, CO2 emissions, THC emissions, and particular matter emissions. It also increases engine power and torque and can extend engine and oil life. The company's solution is particularly suited for regions that adopt drastic emission reduction regu-

lations such as Europe or regions where particle matter count represents a real threat to public safety such as New Delhi or Mexico City.

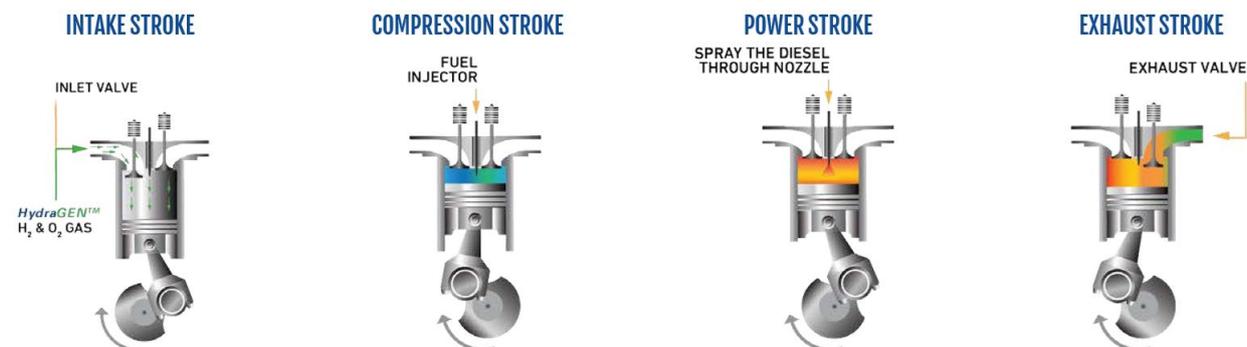
**dynaCERT HydraGEN™ product matrix**

<b>HG145</b>		Diesel trucks and buses Engine class 6-8	5-to-10 liter engines Polymer Case
<b>HG145R</b>		Mining & agricultural industries	Up to 15-liter engines Steel rugged case
<b>HG145B</b>		Waterproof solution	Up to 15-liter engines Black Rugged case
<b>HG2</b>		Light trucks & refrigeration units (containers)	1/3 of the size of HG1 unit
<b>HG145-4C</b>		Marine, rail (locomotives), Large power generators	40-to-100-liter engines
<b>HG145-6C</b>		Marine, rail (locomotives), Large power generators	More than 100-liter engines Composed of 6 HG1-45 units

Source: DynaCERT, GBC-AG

**The workings of HydraGEN™**

Rudolf Diesel built his first prototype of a high-compression engine in 1897. The diesel engine transforms chemical energy (diesel) into mechanical energy through the combustion of a fuel-air mix in the internal combustion chamber. During the combustion, the fuel ignites and produces high-temperature high-pressure gases that in turn move the pistons. There are many ways of achieving combustion. Mostly, diesel engines are four-stroke type engines.



Source: dynaCERT

The four-stroke engine is based on the piston having to make four full strokes to complete the combustion cycle. The first stroke, called the intake stroke is the moment where the first essential component is sucked into the combustion chamber: air. Then comes the compression stroke. During that phase, fuel is pushed into the combustion chamber and the fuel-air mix is compressed. That compression leads to the mix being self-ignited by the high pressure within the chamber. This is called the combustion stroke. This ignition is what creates the force of the engine, resulting in the transformation of chemical energy to mechanical energy. Finally, the last phase is the exhaust when the gases created by the explosion of the fuel air mix are evacuated.

The diesel engine provides more torque, better fuel efficiency and longevity but emits more pollutants than its gasoline counterpart. Tackling this major disadvantage is what has been dynaCERT's focus since its inception: dynaCERT's technology is based on the introduction of pure hydrogen during the intake stroke, modifying the air-fuel mix. Since hydrogen burns 10 times faster than diesel, it acts as a catalyst, accelerating the diesel burn rate, helping the engine burn the diesel more completely and altering the air-fuel ratio resulting in more power, less carbon fouling and a reduction of polluting emissions. Additionally, dynaCERT uses a proprietary electrolysis system to turn distilled water into pure H<sub>2</sub> and O<sub>2</sub> gases.

This technology is not new. Hydrogen-injection systems have been used for over 45 years. Two main issues were preventing the large-scale commercialization and adoption of these systems. First, there was no efficient way of producing hydrogen on demand (without a hydrogen tank) and, second, no real time optimization of hydrogen injection in the engine. Additionally, the lack of a low-cost room-temperature electrolysis system rendered the technology uneconomical. One of dynaCERT's remarkable technological achievements is the result of 15 years of research and development. The company has developed an electrolysis system that consumes less than 1 horsepower of the engine it draws its power from and can produce hydrogen in real time with only distilled water. Additionally, the company developed an ECU (Electronic Control Unit) chip that analyses the engine in real time and optimizes the amount of hydrogen that is added in the engine.

These two innovations combined provide fuel savings and pollution reduction no matter the moving speed or the size of the engine as their solution is easily scalable. The technology can be used for the long-haul trucking industry as well as mining trucks, refrigeration units, or supermax tankers with a diesel engine providing more than 100,000 horsepower.

#### **HydraGEN™: a unique solution**

dynaCERT's solution is unique in its approach. The company is relying on a proven principle from the 1970s when scientists discovered that by adding hydrogen to a diesel stroke engine before the explosion phase, the engine would produce fewer emissions and be more fuel-efficient. Starting from this simple proven fact, the company has invested over USD 50M over the last 15 years in creating today's commercial product: HydraGEN™.

## HydraGEN TM components



HydraGEN TM is a small box that can be easily mounted near the diesel engine compartment. As an example, for long haul trucks, the casing is installed on the back of the truck and then connected to the engine. Inside a HydraGEN TM unit's casing are three main components: the reactor/electrolysis cell, KOH tanks, and the ECU. The distilled water reservoir is located next to the casing for easy filling by the truck driver.

The electrolysis cell is the heart of the system, which produces hydrogen on demand.

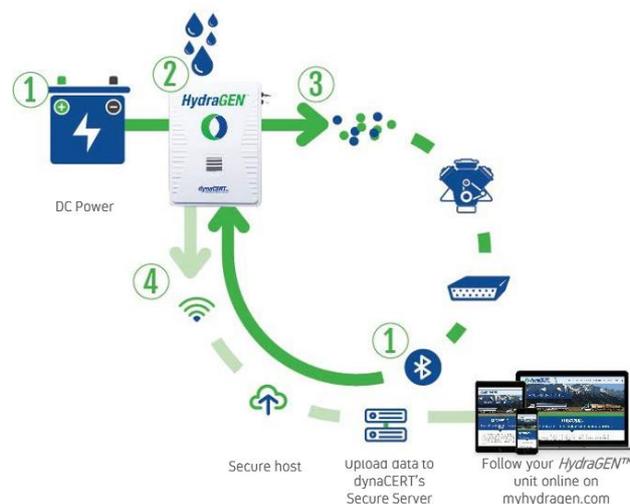
It is powered by the truck's battery and consumes around one Horsepower of the engine's output. The distilled water electrolysis generates hydrogen, enabling the entire system to be hazard-free. There is no need for a pressurized hydrogen tank to be installed and no high-temperature pressured gas is moved into the engine, making HydraGEN TM safer to use. Even more, the hydrogen produced is inserted into the air intake of the engine, therefore not modifying the engine in any way.

The brain of the system is the ECU computer. It is this patented computer chip that controls and adjusts the optimal amount of hydrogen to be added to the combustion chamber at every engine stroke. Prior to dynaCERT's success, no company had been able to deliver a single tailor-made hydrogen solution that can adapt to every type and model of diesel engine and, moreover, a product that optimizes the hydrogen production in real time to maximize the savings effects. The ECU, furthermore, compares the results from the engine on-board diagnostics data with a baseline for this exact engine in the exact same conditions (speed, rpm, etc.) and calculates the real time CO<sub>x</sub>, NO<sub>x</sub> and fuel economy realized by using HydraGEN TM.

It is important to mention that HydraGEN TM takes up to approximately 4 weeks of burning-in and lapping before showing expected results. During that time, the engine combustion chamber gets cleaned through the higher temperature combustion made possible by the added hydrogen. Also, the ECU unit is pairing with the board computer, gathering and analyzing the data to optimize the quantity of Hydrogen that must be injected at any moment. This lapping period has led to discrepancies in the results between tests. Tests conducted before that period had ended did always not show as prominent emissions or fuel consumption savings when compared to tests done once the burning-in was completed.

A HydraGEN TM unit also provides additional features. It is linked via Bluetooth to the driver's cell phone, updating in real time precious fleet management data, through the MyHydraGEN TM Technology App.

All the data gathered by HydraGEN TM data is uploaded into the cloud, enabling the



fleet manager to access it remotely in real time. The driver also receives an alert on his phone when the distilled water level is running low and should be refilled. Refilling the distilled water is the only maintenance action that the truck driver has to perform to maintain HydraGEN™ operation.

HydraGEN™ has quickly become not only a way to environmental compliance but also an investment that has an ROI of under a year and is, therefore, profitable starting from the 10th month of usage.

### HydraLytics™ – Fleet Management software and future Carbon credit generator



HydraLytics™ is an engine telemetry device software that allows HydraGEN™ owners an easy access to fuel savings and carbon emission reduction monitoring and reporting. As soon as the HydraGEN™ unit is activated the software downloads the historical data from the truck's on-board-diagnostic port consisting of total lifetime mileage and total lifetime hours and calculates the fuel consumed. This is how HydraLytics™ establishes the lifetime baseline of the truck that will serve for comparison purposes. Once the truck is in operation using HydraGEN™ TM, the software performs the same operation and determines the difference in fuel economy, resulting in a clear proportional reduction in CO2 equivalent emissions. The company can, therefore, monitor in real time its fuel savings and emissions reduction performance. The system, provided with an Internet connection, also enables the use of additional telemetric data. The software continuously maps the routes and truck position and can give historical routes. It allows both the truck drivers and the owners of the truck to monitor the performance of their vehicle. This allows HydraGEN™ TM, coupled with HydraLytics™ TM to serve as a fleet management program.

Apart from relaying real time data as a fleet management software, HydraLytics™ will also serve as a base for the company to enable carbon credits for its HydraGEN™ product. In March 2019, dynaCERT has initiated the worldwide process of carbon credit applications for its HydraGEN™ Technology. In that regard the company has commissioned the services of Environmental Partners Limited of the U.K.. With the precise calculations of consumption compared to the historical performance of a truck, dynaCERT holds the key to unlock a possible massive new line of revenues by aggregating carbon credits for truck owners that would otherwise not have access to them. By managing carbon credits for their HydraGEN™ clients, dynaCERT's business model is based on sharing the revenues generated by the sale of the carbon credits. We project the company to keep between 30% and 50% of the total carbon credit revenues generated depending on the fleet size of the client.

In order to receive accreditation for their carbon credit calculations, dynaCERT has created an innovative proprietary software algorithm: SMART ECU2 (patent awarded). This unit tracks the creation of carbon credits. In order to secure the data, dynaCERT has hired FinTech entrepreneur Brian Semkiw. Mr. Semkiw is known for developing the world's first third generation processing payment company with emphasis on Blockchain and IOT payments processing solutions. We project that the company will use smart contracts based on a Blockchain technology, or new state of the art payment security software, to create and trade single carbon credit units with very low fees. This technology, both the carbon credit calculation and smart contracts, will provide dynaCERT with a unique opportunity that could become the company's biggest source of revenue when a certain threshold of HydraGEN™ units has been sold. This solution can be offered to

any client using HydraGEN TM, no matter the size of their fleet, from a single small delivery truck owner in Mexico City to a fleet of 40-ton mining trucks in Australia.

#### Projected revenues for long haul trucks generated from Carbon Credit

Co2 reduction	5%	8,6%	10%	15%
Total Co2 emitted (kg)	163,592	163,592	163,592	163,592
Total Co2 saved with HydraGEN TM (kg)	8179.6	14068.9	16359.2	24538.8
Price Carbon credit per Ton (USD)	44	44	44	44
Revenues / year (USD)	359.9	619.0	719.8	1079.7

Source: DynaCERT, GBC-AG, based on 10L/100km and 161,000 km annually

HydraLytica TM offers a unique opportunity both for the company and their clients to capitalize on the full spectrum of their carbon-reducing technology advantages. In our opinion, under a subscription-based model, HydraLytica TM gives dynaCERT's clients an economical advantage over any competitive emissions reduction solution as it not only allows to improve the ROI of the HydraGEN TM units, but it also unlocks a completely different revenue pillar for the client. Additionally, dynaCERT will provide the monetizing services of the carbon credits, by aggregating and reselling them on the international markets, delivering an all in one, easy to manage solution to their HydraGEN TM clients. Even if companies cannot yet benefit from the carbon credits, we expect dynaCERT to launch their product rapidly.

We believe that over 90% of the owners of HydraGEN TM units will choose to join the carbon credit program. With the projected sales of HydraGEN TM the company's carbon-credit subscription business could develop into a major asset and its worldwide credit portfolio will give the company extreme flexibility. We believe that it could become dynaCERT's core business in the next few years when the product development will be completed and released to their consumers.

What is also interesting is that dynaCERT evaluates the current ROI of less than a year solely on fuel economy. The company did not include the carbon credit revenues generated, the costs of replacing old trucks that otherwise would not be compliant with new environmental laws or the savings realized due to the use of their fleet management program.

#### Projected economy for long haul trucks

	5%	8,6%	10%	15%
Cost (USD)	7,800	7,800	7,800	7,800
Avg. distance (km)	161,000	161,000	161,000	161,000
Fuel cost (USD/km)	0.48	0.48	0.48	0.48
Savings (USD/km)	0.024	0.041	0.048	0.072
ROI (years)	2.0	1.2	1.0	0.7

Source: DynaCERT, GBC-AG

There is no known competitor to dynaCERT's HydraGEN TM unit, especially when combining it with the HydraLytica TM software that offers in one solution, an emissions and fuel consumption reduction device, a carbon-credit management program (projected) and a fleet management software. Adding all these elements together not only sets dynaCERT apart but makes it a closed ecosystem that, once implemented in a trucking fleet, becomes extremely hard to replace by any other product.

#### Tested and Certified

HydraGEN TM's fuel efficiency and emission reduction systems have been tested and certified by different third-party verification companies such as the PIT Group in Montreal and Continental EMITEC (mandated by TÜV Süd). Emitec's testing was more thorough by compiling data over two days of testing. The detailed tests results show major im-

provement, compared to the same truck running without HydraGEN, of up to 57,10% for THC, 27.20% in CO, 28.00% for NOx, 9.60% for CO2, 56.50% for Ammonia, 55.30% in Particulate matter, 95.10% in Particle number and 8.60% fuel consumption.

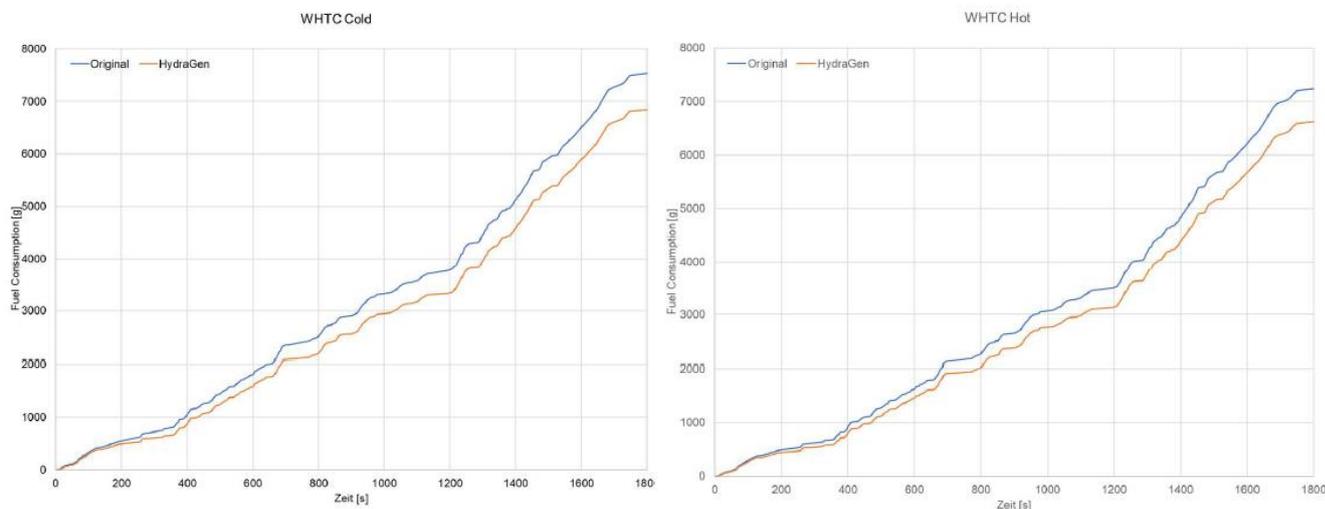
**DynaCERT's Pit Group and Emitec WHTC tests results.**

Data measured	Pit Group Improvement	Emitec Day 1 Improvement	Emitec Day 2 Improvement
THC	50%	-46.60%	57.10%
CO	53%	27.20%	15.00%
NOx	55%	28.00%	8.10%
CO2	-1%	7.30%	9.60%
Ammonia	Not tested	56.50%	36.20%
Particulate matter	Not tested	0.00%	55.30%
Particle number	Not tested	95.10%	90.90%
Fuel Consumption	5.53%	6.80%	8.60%

Source: GBC-AG, Emitec, Pit Group, Emitec: Report Investigations on the CV Chassis Dynamometer as Basis for an Assessment by TÜV-Nord – Part 1; July 2019

In order to evaluate the real-world driving conditions emissions and fuel economy, many countries are now using the World Harmonized Steady-State Cycle (WHSC) and World Harmonized Transient Cycle (WHTC) over the European Stationary Cycle (ESC) and European Transient Cycle (ETC). DynaCERT's HydraGEN got tested under the WHTC certification tests. The WHTC test must be run both when engine is cold started and hot started. The results are as follow:

**Fuel Consumption – Test Bench Measurement – WHTC Cold und WHTC Hot**



Source: DynaCERT, Emitec: Report Investigations on the CV Chassis Dynamometer as Basis for an Assessment by TÜV-Nord – Part 1; July 2019

It is clear to us that under these tests conditions which are adopted for a better representation of the real-world conditions, the fuel savings are important. We believe that the results would vary under different circumstances. With different engines, different roads and especially different drivers but if we eliminate these factors, just as the tests do, these results justify the use of the word “disruptive” when addressing DynaCERT's technology. These results provide improvements not just in CO and fuel savings but in all other emissions tested. These results show the complete array of advantages that HydraGEN can deliver.

### DynaCERT's HydraGEN TM testing conditions



Source: DynaCERT, Emitec: Report Investigations on the CV Chassis Dynamometer as Basis for an Assessment by TÜV-Nord – Part 1; July 2019

#### Europe

TÜV Nord is a certification company for health and safety that was founded in 1910. Facilitated by the Federal Motor Transport Authority in Germany, dynaCERT mandated them to test and certificate HydraGEN TM for the EU market. Their certification is a must for any device installed on a vehicle. Without their ABE (Allgemeine Betriebserlaubnis) certification, an automobile component cannot be sold and installed legally in Europe.



TÜV Nord had never encountered any device like HydraGEN TM and the company was obligated to create a brand-new testing protocol for HydraGEN TM homologation. All the appropriate tests have been conducted and the HydraGEN TM technology has passed all test points. **The ABE certification was received by the company on August 26<sup>th</sup>, 2019. This certification was the missing key to mass adoption of HydraGEN TM by the transportation industry. We therefore project a swift influx of major orders of HydraGEN TM devices.**

#### North America (Canada, USA)

PIT Group, a division of FPInnovations is a neutral, third-party organization that tests heavy truck technologies, evaluates their operational effectiveness and offers fleet advisory services. Their goal is to accelerate large-scale implementation of technologies in each phase of the transportation system aimed at reducing costs and environmental impacts and increasing the safety of truck fleet operations. They have been active in the field of transportation for over 35 years. The PIT Group tests new technologies and prototypes on effectiveness and compliance with US and/or Canadian regulations, as well as assessing fleet operations and develops smart mobility solutions. PIT Group's Energotest is recognized in the trucking industry as the gold standard for fuel economy tests and is ISO-17025-certified by the Standards Council of Canada (SCC). Fleets across North America rely on PIT Group's insight and advice to select the best technology to reduce costs and environmental impacts and to improve their operations and maintenance. dynaCERT's HydraGEN TM was tested in two test segments between June and October 2017. The PIT Group found a fuel economy of up to 5,53% as well as serious emissions reductions of about half for THC, CO and NOx values.



## Asia

DynaCERT has received in January 2019 a notification of certification for India and South Asia from the International Centre for Automotive Technology (iCAT) for their HydraGEN TM product. The company is now authorized to sell their product in these regions.

HydraGEN TM has also won several innovation prizes. The two most important are the 2018 Gold medal winner Edison Award for Best New product in the Vehicle Advancements Category and the 2019 German Innovation Awards prize for Energy Solutions from the German Design Council.

The Edison award is an annual competition that aims at identifying the emerging trends and new market developments by honoring the next innovations and business success.



The German Innovation Award honors products and solutions that distinguish themselves primarily by their user centricity and added value compared to earlier solutions across all industrial sectors. The competition makes outstanding achievements visible to a wide audience and ensures successful positioning in the market.<sup>1</sup>



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<sup>1</sup> <https://www.german-innovation-award.de/en/>

## Historic company development

Date	Development
2004	Founding of Dynamic Fuel Systems Inc.
2009	Introductory sales generated to first adopters
2010	Developed Patent Pending system that separates hydrogen and oxygen – HydraGEN TM
2012	Dynamic Fuel Systems Inc. becomes dynaCERT Inc.
2016	3 <sup>rd</sup> party testing from UOIT confirmed the performance of the HydraGEN TM technology
2017	Shipping of the HG1 product to customers worldwide
2017	Successful testing on a 2.1 L diesel engine for a refrigerated trailer
2017	3 <sup>rd</sup> party testing and verification by the PIT Group in Montreal
2017	December – First Order from Europe
2017	Proprietary Greenhouse Gas tracking system
2017	CE Certification for HydraGEN TM Technology in Europe
2018	Won Top Gold Edison Award for Vehicle Advancements
2018	Government of Austria commits to test the dynaCERT technology
2019	Government of India commits to test the dynaCERT technology
2019	HydraGEN TM™ Technology for the Mining Industry launched
2019	dynaCERT Patent Granted
2019	First Ontario Trucking Fleet Order
2019	Honored by 2019 German Innovation Awards
2019	Initial Purchase Order for 100 HydraGEN TM™ Units from Mexico
2019	New Engine Telemetry Device Software launched
2019	Financing through a Subscription membership with KarbonKleen launched
2019	DynaCERT receives ABE certification

Sources: DynaCERT Inc., GBC AG

dynaCERT was first founded as “Dynamic Fuel Systems Inc.” in 2004. They developed their HydraGEN TM unit in 2010, a device that uses electrolysis to produce hydrogen from distilled water. In 2012, the company rebranded as dynaCERT in order to better reflect the company's vision and expanding product offerings. After further research and development, third-party tests confirmed the products' performance and the first units were sold worldwide in 2017. After adding their proprietary greenhouse gas tracking system, the company has won various awards for their product and received numerous letters of intents from governmental bodies with following bulk order upon demonstration. In 2019, the HydraGEN TM has been granted a patent and further orders for the product are continuing to reach the company.

## **Board of management**

### ***Executive Board***

#### **Jim Payne - CEO**

Mr. Payne graduated from St. Clair College in Windsor, Ontario with a degree in Construction Engineering, Project Management and Estimating in 1974. Since then he has built and managed multiple companies. He has over 38 years of experience in accounting, business leadership and governance. He is CEO of dynaCERT Inc. as well as CEO of his privately held consulting, project management and real estate development company, V2R Group Inc.

#### **Robert K. Maier, MBA, P.ENG - COO, Chief Engineer**

Mr. Maier graduated with a degree in Mechanical Engineering from the University of Toronto in 1982. He then followed up with an MBA from the University of Western Ontario and the Richard Ivey School of Business in 2003. After his studies, he has occupied senior positions in various industrial companies, giving him over 30 years' extensive professional experience in various sectors. He served as President and General Manager of Semco Technologies, Kaperal Corp, and MKG Inc. and founded his own company, Ellsin Environmental in 2008. Since 2011, Robert Maier has been the President of SPS North America. At dynaCERT, he serves as Chief Operating Officer.

#### **Carmelo Marelli - CFO**

Mr. Marelli graduated with a Bachelor of Commerce from the University of Toronto, after which he also became a Chartered Professional Accountant (CPA) and a Corporate Secretary and Professional Administrator. Mr. Marelli founded Marelli Support Services Inc. in 2000 and has been delivering accounting and regulatory compliance services to public and private companies for over 19 years. Additionally, he provides corporate secretarial and regulatory filing services through an affiliated company, DSA Corporate Services Inc.

### ***Further Management***

#### **Enrico Schläpfer - VP of Global Sales**

Mr. Schläpfer earned his degree in logistics, evaluation and analysis from the Ecole Polytechnique fédérale de Lausanne. He has over 20 years' experience as a sales and marketing professional in a broad selection of industries. He has held multiple positions as Account, Country and Brand Manager as well as Managing Director in the food, electronic, and consumer goods sector. Some of the companies he has worked with include Nestle, Traxdata and Targus as well as being COO and business partner of WorldConnect.

#### **Khoa Tran - Director of Finance**

Mr. Tran graduated from York University with a B.A. degree in Economics and Accounting. He has over 20 years of experience in financial analysis and reporting, cost accounting, and variance analysis and government reporting. For over 15 years he has held management positions at international companies in the automotive, manufacturing and service industries.

#### **R. Wayne Hoffman - Chairman**

Mr. Hoffmann is a Chartered Accountant and has served as a member on the Corporation's Business Advisory Committee since 2007. He has over 10 years of experience in product development, integration and automation and has served as Vice-President, Finance at John Deere Limited for 25 years. He furthermore spent over 8 years as Pres-

ident of John Deere Credit. Mr. Hoffman is Independent chairman of the Board of dynaCERT.

**David Bridge - Senior Technical Advisor**

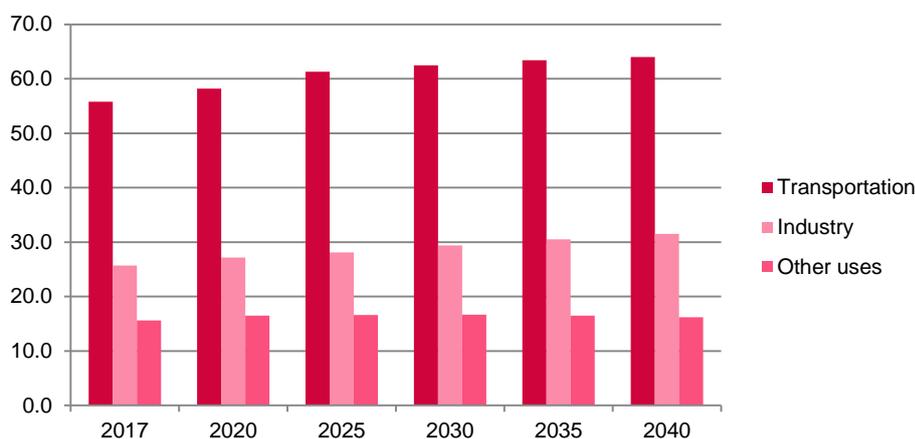
Since graduating from York University, Mr. Bridge has gained over 25 years of experience in engineering and technology. His extensive background includes restructuring and streamlining IT to increase efficiency and reducing costs at well-known ventures such as AMD, RBC Financials, Virgin Mobile and Blackberry. As senior IT leader, he helped Virgin Mobile to become a major player in the telecommunications sector in Canada and was responsible for designing and supporting large scale enterprise wide systems at Blackberry as Director of Infrastructure, Architecture and Engineering. At dynaCERT he is the brains behind their Smart-ECU computer unit.

## MARKET AND MARKET ENVIRONMENT

### The Oil markets

Global oil demand continues to be on the rise according to forecasts by OPEC (Organization of the Petroleum Exporting Countries). They assume an increase from 97.2 mb/d (million barrels per day) in 2017 to 111.7 mb/d in 2040. The area with the most significant oil consumption is forecasted to be the transportation sector (accounting for 56% of the additional barrels to be consumed in 2040), which will be boosted by the rise in total vehicle stock. The latter is estimated to expand from 1.1 billion in 2017 to 2.4 billion vehicles in 2040. The number of passenger cars is estimated to grow by 877 million units in 2040, with almost 768 million coming from developing countries. India, for example, is expected to see around 128 million additional cars on its roads. This is because this number has a lot of room to grow and will do so especially with their GDP growing at the expected rates. Similarly, the total commercial vehicles fleet is expected to expand from 230 million vehicles in 2017 to 462 million by 2040<sup>2</sup>.

#### Sectorial oil demand, 2017–2040



Source: World Oil Outlook 2018 (OPEC)

Approximately 45% of international transportation demand comes from the road-transportation segment, which is projected to increase from 43.6 mb/d in 2017 to 47.8 mb/d by 2040. More specifically, the OPEC outlook assumes the gasoil/diesel product sector (32 mb/d estimated in 2040) and the gasoline product sector (28 mb/d estimated in 2040) to grow the fastest.

In terms of a regional breakdown, OECD countries (mainly America and Europe) were the biggest oil consumers in 2017. Long-term growth is driven by developing countries including China (12.3 mb/d to 17.4 mb/d in 2040) and India (4.5 mb/d to 10.4 mb/d in 2040). Other factors driving long-term oil demand is a growing GDP and population growth (i.e. the expansion of the middle class).

While passenger car purchases are typically emotionally driven decisions, the cost of fuel is an important component in the acquisition of commercial vehicles. This is the main reason why most commercial vehicles sold are equipped with diesel engines, as further boosted due to benefits related to energy density (per-volume base) and governmental tax subsidies.

<sup>2</sup> World Oil Outlook 2018 (OPEC)

## The Diesel Market

The diesel engine is a type of internal-combustion engine. Its creation dates back to the 1890s by the German Rudolf Diesel who aimed to ensure a more efficient utilization of petroleum and coal-tar products. Due to the better efficiency in translating fuel into power and due to its reliability, the internal combustion diesel engine has been used in various industries such as on-road and off-road transportation, marine shipping, electric power generation, manufacturing and farming. As reported by the Diesel Technology Forum, over 70% of the USA freight tonnage and almost all highway freight trucks are moved by diesel.

The Power Systems Research EnginLink statistics assume that diesel engine production should reach 21.2m units in 2021 (2015-2021 CAGR of 3%). The study is mainly based on GDP growth. The most relevant diesel end-users were in 2016 (1) passenger cars with around 30% market share, (2) agriculture with around 18%, and (3) light commercial vehicles with 13%. Specifically, the study forecasts a higher growth for minivans, recreational products and lawn-and-garden products, but only a small growth for construction and power generation and a decrease for medium and heavy trucks and agriculture.

### Diesel-Powered Production by Segment in 2016

	% of total	Growth Rate 2016 vs. 2015
Passenger Car	30%	8%
Agricultural	18%	-4%
Light Commercial Vehicles	13%	5%
Minivans and SUVs	11%	8%
Medium And Heavy Vehicles	13%	-2%
Industrial	6%	1%
Power Generation	4%	0%
Construction	3%	-1%
Recreational Products	1%	4%
Marine Propulsion	1%	-1%
Lawn and Garden	0%	3%

Source: Power Systems Research EnginLink, 2016

Over the last few years, major diesel engine and equipment manufacturers have restructured their efforts to improve the competitiveness of their products and their cost structure. They must remain flexible to manage business cycles, market uncertainties, reduce emissions and comply with government regulations. The study by Power Systems Research forecasts that the key diesel engine manufacturers in 2020 (excluding passenger cars) will be the Indian conglomerate Mahindra Group, the American companies Ford Motor Co. and Cummins, the German Volkswagen AG and the Japanese Isuzu Motors Ltd.

### Top 5 Diesel Engine Manufacturers 2010-2020 (Excluding Passenger Cars)

2010	2015	2020 (Forecast)
Changchai Group	Cummins Inc.	Mahindra Group
Shandong Shifeng Group	Mahindra Group	Ford Motor Co.
Cummins Inc.	Ford Motor Co.	Cummins Inc.
Jiangsu Changfa	Isuzu Motors Ltd.	Volkswagen AG
Toyota Motor Corp.	Volkswagen AG	Isuzu Motors Ltd.

Source: Power Systems Research EnginLink, 2016

Global demand for diesel engines is expected to be mostly driven by emerging markets (e.g. India, China and ASEAN markets). These countries are making significant invest-

ments and implementing structural changes that will increase the demand for transportation and diesel engines specifically.

### ***Diesel Engines Issues and Regulations***

Diesel engines emit a high quantity of air pollutants such as NO<sub>x</sub> (nitrogen oxides) and PM (particulate matter). These exhaust emissions have negative effects on the environment and human health. Governments of several countries have decided to set pollutant emission limits for diesel engines which will, foreseeably, become even more stringent given the recent Dieselgate scandal. As reported in “The Future of Diesel Engines” by Arthur D. Little, the transport sector is one of the main contributors to air pollution. Exhaust gases are responsible for around 46% of total NO<sub>x</sub> emissions in the EU-28 and can, therefore, be classified as a major policy issue. It is also detailed that almost 50% of yearly car registrations in the EU are diesel-powered (the US, China and Japan largely opt for gasoline-powered cars).

Compared to gasoline engines, diesel engines require more complex and costly technology to control and reduce polluting emissions (i.e. devices specifically designed for air management, fuel injection, and after-treatment). The study by Arthur D. Little clarifies that available technologies to reduce exhaust gases (such as diesel oxide catalysts, diesel particulate filters, selective catalytic reduction devices, lean NO<sub>x</sub> traps) are especially expensive and require higher investments. Recent analyses explain that exhaust emissions are even higher under regular driving conditions than during laboratory test conditions. Car producers on the European market with its high demand for diesel engines and its stringent air quality standards will have a hard time facing these challenges while supplying cost-efficient products and solutions.

Besides passenger cars, the heavy-duty vehicle sector accounts for around 5% of all European greenhouse gas emissions as stated by the ACEA (European Automobile Manufacturers Association). During the last few years, policy makers in the EU have set rules to decrease pollutant emissions (NO<sub>x</sub> and PM) by introducing sets of so-called Euro standards. In the US, approximately three out of four trucks have a diesel engine (source: Diesel Technology Forum) as do 99% of all the largest trucks (Class 8). Due to the complexity of the trucking market, setting general requirements suitable for all categories is quite challenging. However, one example of useful legislation is the mandatory declaration of CO<sub>2</sub> emissions by truck owners aimed at comparing fuel efficiency. It also performs as a lever to increase transparency and competition among OEMs (Original Equipment Manufacturers).

Overall, trucks are built according to their intended use while their efficiency depends on the legal boundary conditions (e.g. speed limits or cargo volume). The US National Highway Traffic Safety Administration (NHTSA) and the Department of Transportation (DOT) have set rules to reduce greenhouse gas emissions and fuel consumption for on-road medium and heavy vehicles and engines. Fuel consumption standards and CO<sub>2</sub> emissions protocols are nevertheless based on regulatory categories (source: U.S. Environmental Protection Agency).

### **Dieselgate**

Due to the Dieselgate scandal in September 2015, additional limitations on diesel engines have been introduced. At that time, it became public that an international automotive manufacturer had inaccurately managed its tool for emission tests of diesel-powered vehicles. Since then, numerous emissions studies have been revised and new ones contracted. They have explained that while diesel vehicles emit less CO<sub>2</sub> than gasoline engines, the NO<sub>x</sub> emissions are drastically higher. This had not been taken into account

in EU policies up to that moment. Furthermore, EU legislation now also includes more stringent rules for vehicle monitoring and testing.

### **The Marine market**

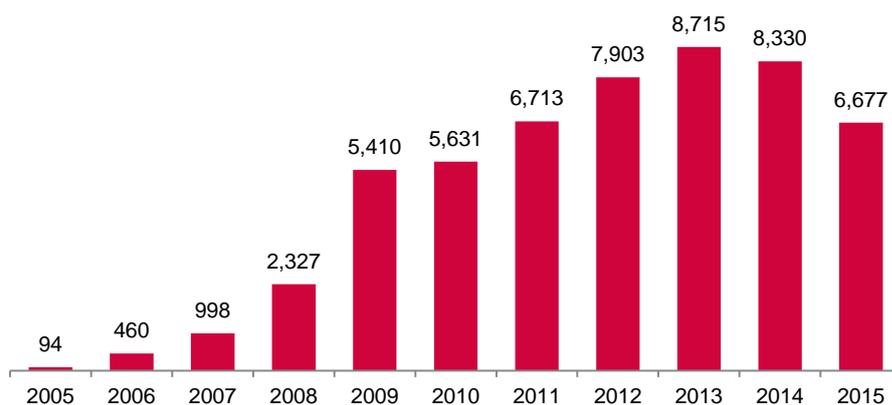
The international shipping industry is another sector that will not be spared from ongoing changes to regulations and requirements. The U.N. International Maritime Organization (IMO) has adopted new rules for a low-sulfur compliant fuel oil (e.g. Brent). The sulfur limit has been lowered from 3.5% m/m (mass/mass) to 0.50% for the fuel oil used in auxiliary engines and boilers. Nevertheless, instead of switching to a cleaner fuel oil directly, the international shipping authority also allows the use of approved equivalent methods to clean emissions such as exhaust-gas cleaner systems.

These changes in the marine market will, on the one hand, lead to a greater demand for low-sulfur fuel oil (sweet crude) which should increase drastically especially with a price that is anticipated to grow to USD 5. On the other hand, the demand for high-sulfur fuel oil (sour crude) is projected to significantly decrease. In the report "Getting Ready for IMO 2020", KPMG assumes a surplus of 2.6 mm bbl/d in sour crude oil by 2020. Ships with installed scrubbers could use the excess or it could be sold into alternative markets.

### **The Carbon Credit Market**

Carbon credits are tradable certificates, which are among the most cost-effective tools to reduce greenhouse gas emissions (GHGs). Companies that make a valuable contribution in reducing greenhouse gas emissions are rewarded with carbon credits (a tradable commodity) while those exceeding the bounds have to purchase credits. This gives financial value to any emission savings and indirectly promotes a low-emission culture. Each credit is equivalent to 1 ton of carbon dioxide. Each country is given an annual emissions quota. The regulation refers both to the United Nations Climate Change Convention UNFCCC (1992) and to the international agreement of the Kyoto Protocol (1997) designed to limit GHG emission.

#### **Trading volumes in EU emission allowances (in millions of tons)**



Sources: European Commission Climate Action, Bloomberg LP, ICE, EEX, NYMEX, Bluenext, CCX, Greenmarket, Nordpool, UNFCC. Also using Bloomberg New Energy Finance estimations.

In 2005, Europe introduced an emission trading system (ETS) that allows companies to trade greenhouse gas credits in a cost-effective way. The system includes the 28 EU countries plus Iceland, Liechtenstein and Norway. To date, this is the world's biggest emission trading scheme and represents more than 3/4 of all international carbon trad-

ing. After the negotiation of new agreements in November 2017, Europe has decided to carry on with its ETS as a driver for low-carbon investments in the years 2021-2030 (Phase 4 of ETS). The European commission also released statistics stating that in 2016 their emissions trading system reduced the amount of GHG emissions by 2.9% amongst participating institutions. About 45% of all EU GHGs are included in the emissions trading system and this number is still growing. To provide some data, nearly 26 million credits or derivatives were traded per trading day in 2015. Thus, the platform provides a great incentive to invest in clean technologies and low-carbon development.

## COMPANY PERFORMANCE AND FORECAST

P&L in TSD CAD	FY 2018	FY 2019e	FY 2020e	FY 2021e
Revenue	158.484	4617.600	62400.00	223896.000
<b>Total Revenue</b>	158.484	4617.600	62400.00	223896.000
Cost of goods sold	-127.384	-3232.320	-43680.00	156727.200
<b>Gross Profits</b>	31.100	1385.280	18720.00	67168.800
Rent & occupancy	0.000	0.000	0.000	500.000
Amortization	0.000	0.000	0.000	0.000
Inventory adjustment	-1750.109	-2000.000	0.000	0.000
Business development and marketing	-909.270	-909.270	-1363.91	-6.717
General and administrative	-2192.854	-2192.854	-2631.42	-2762.996
Legal and audit	-350.657	-350.657	-3506.57	-3681.899
<i>Research and development</i>	-3952.594	-4867.296	-5354.03	-11.195
Wages and benefits	-3959.601	-3959.601	-4751.52	-23757.606
Foreign exchange loss	-156.980	-156.980	0.00	0.000
Share based compensation	-3506.862	-3506.862	-1000.00	-1000.000
<b>EBIT</b>	-16747.827	-16558.240	112.55	36448.388
Interest revenue	-120.576	-119.211	0.81	262.410
<b>EBT</b>	-16627.251	-16677.451	113.36	36710.798
Taxes	0.000	0.000	0.000	0.000
<b>Net Profit</b>	-16627.251	-16677.451	113.36	36710.798

Source: GBC AG

## **Historical development of the company**

dynaCERT has been selling its product to first adopters since 2009. However, in 2017, one of the company's manufacturers failed to deliver necessary electronic pieces. This error resulted in them not being able to deliver on previous orders. While the buyers were extremely understanding, they, nevertheless, had to cancel their orders. dynaCERT's management understood that this was a do-or-die moment. They had to rebuild their image and the confidence of their clients in order to move on and attract new customers. The president, Mr. Jim Payne, took drastic measures to ensure that such an incident would not happen again. They scrapped the faulty devices, found new suppliers and rebuilt their inventories. With a lowered cash inflow, the company had to raise money on the markets. In the meanwhile, dynaCERT ended the open contracts on good terms and focused on the future. They introduced a new quality control program that included certifications, insurance policies, complete traceability of supplier parts, and thorough testing of each unit on the assembly line. Pictures of the installation are also taken and are accessible at all times to ensure best control over third party installation. The company has diligently addressed the situation and can now move forward, having benefitted from this experience.

### **Worldwide sales**

#### **Austria**

In December 2018, dynaCERT signed a letter of intent with the provincial government of Carinthia in Austria which will order and install four HydraGEN™ units on diesel-powered heavy-duty road vehicles. During a three-month pilot project, these trucks will be equipped with continuous portable emissions measuring systems (PEMS) devices. Should the pilot project prove to meet the emission reduction targets, the province of Carinthia wants to equip all their diesel-powered vehicles with dynaCERT technology in order to meet the EU emissions targets. They will certainly act as a pioneer in the European Union, with many other provinces and countries to follow suit.

#### **Brazil**

Air pollution is starting to be a threat to public safety in certain South American regions, which is why local authorities are striving to find efficient ways to reduce carbon emissions. A few HydraGEN™ units are now being tested in Brazil with first results demonstrating important fuel savings for particular machinery such as a logging truck travelling a distance of 50km per day at 10km/h only.

#### **Canada**

On April 11th 2019, dynaCERT announced a purchase order of 10 units of their HydraGEN™ HG145 model from Newport Environmental Technologies, which is a member of the publicly-traded company Sparta Group.

#### **India**

On January 16th 2019, dynaCERT announced the receipt of a letter of intent for the sale of two HG145B units and, upon positive results, a following bulk order of 1,000 units to be installed on buses and service trucks by the Rajasthan Road Transport Corporation. At the same time, dynaCERT received another letter of intent for two units of the HG145B units to be followed, upon positive results, by 1,200 units. India's interest in dynaCERT's emission reduction technology comes as no surprise as 13 of the world's 20 most polluted cities by particulate matter concentration are in India.

#### **Mexico**

On July 2nd 2019, dynaCERT received a purchase order for 100 units of the HydraGEN™ GH145B unit. The order came from Alliance, a trucking equipment supplier of one of

the largest labor unions in Mexico. Moreover, Karbonkleen, a preferred systems provider of the company signed an MOU for the first 10,000 units sold in Mexico through Alliance to be produced in Toronto in dynaCERT's facility. Alliance has access to a market of over 1,000,000 diesel vehicles in Mexico City. Additionally, dynaCERT is in negotiations to establish a new facility in Mexico that could assemble and service over 1,000,000 HydraGEN TM units.

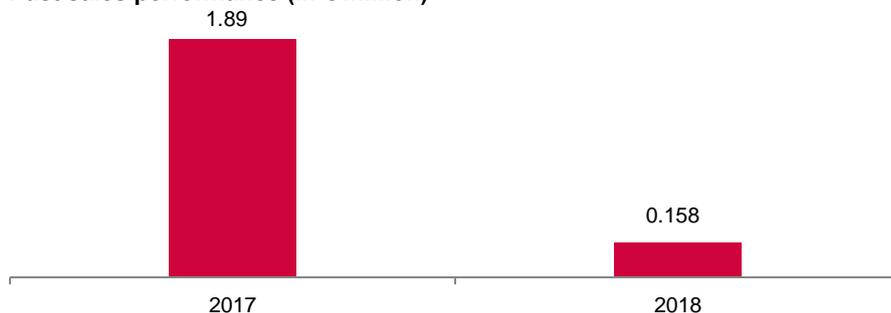
**Middle East**

A HydraGEN TM unit is currently being installed at a 1.5-megawatt generator in a remote desert in the Middle East. After successful tests, the other 11 diesel generators at the site as well as other vehicles in the region could be outfitted with dynaCERT's technology.

**Revenue performance for 2017 and 2018**

The year 2017 was bound to be determining in the company's history. With their sales picking up and positive announcements being made, the company was looking at a bright future. In the first and second quarter of 2017, the company sold for over USD 1.6M, accounting for 85% of the year's sales. As discussed previously, orders in the second half of 2017 were not fulfilled due to missing parts from a supplier and the sales plummeted. Since the company had to focus on managing this crisis and finding new manufacturers, they did not sell any units until completely convinced of their reliability, making the 2018 sales minimal as well.

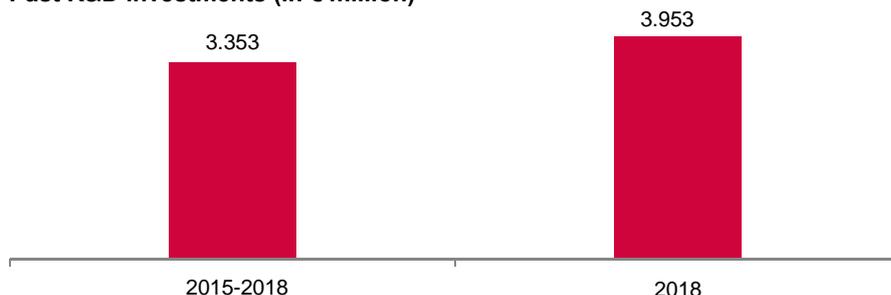
**Past sales performance (in € million)**



Source: dynaCERT Inc.

The management's focus has now changed from managing this short-term crisis to delivering long-term sustainable product quality. This will prove beneficial in the next quarters as the company is returning to the market stronger than before. dynaCERT has also massively invested in R&D during 2018, more so than over the last four years combined. This has resulted in their having a complete series of products delivering solutions to the highest standards.

**Past R&D investments (in € million)**



Source: dynaCERT Inc.

## Earnings performance

With the event in 2017, the company's earnings performance was understandably deficient. dynaCERT was supposed to have achieved important sales and revenues throughout 2017 and this trend should have continued forward. As explained earlier, it is rather the opposite that happened, with the company registering no sales during 2018's first quarter.

### Balance sheet/financial situation of dynaCERT

Selected positions of the consolidated balance sheet (in € million)	31/12/2017	31/12/2018
Equity	102.007	109.982
Equity ratio (in %)	51.58%	49.11%
Share count	234.726	250.909
Cash and cash equivalents	2.272	0.417
Operating fixed assets	4.836	3.166
Net working capital	9.992	7.085

Source: dynaCERT Inc., GBC AG

The results are aligned with the difficult situation the company had to face. Losing massive inventories, sales and revenues can often mean the end for small companies. This situation is reflected in the past years' results. Liquid assets and equity ratio consequently decreased. The company's cash position at the end of 2018 was precarious but they raised equity on the stock market and now have a healthier cash balance at the end of 2019's first quarter of USD 1.201M.

Overall, the events of June 2017 have seriously impaired the company's financial performance. However, their sound share structure with over 76% under management or close control has led the company to raise equity and sail through the storm without much impact on the total future value creation for shareholders. Moreover, we can now expect the company to succeed in its new, improved and tested line of products. Looking at this event with some temporal and emotional 'distance', we view it as an important wake-up call for the company through which its management has had to prove their worth. In the years ahead, we believe that dynaCERT's financials, sales and position in the sector will improve considerably, becoming the leading technology for diesel-engine emissions reduction. We, therefore, view the next few quarters in a highly positive light and expect the company to build on this experience and conquer important markets such as the USA, Europe and South America. With an increasing international sales volume, we project that the company will be posting considerable profits in a few years from now, as well as expanding its international footprint with assembly plant expansions in various countries.

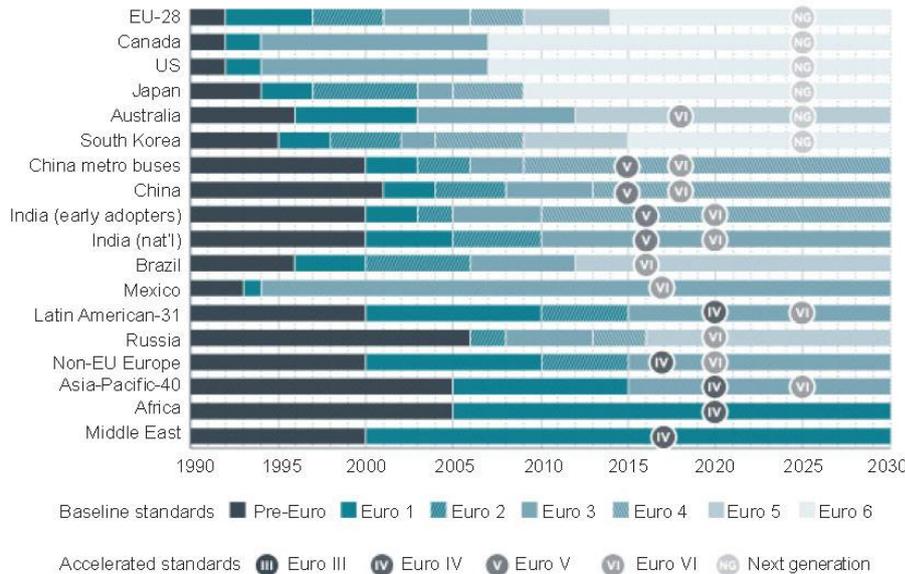
## SWOT-Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> <li>• Seasoned management that had to prove its commitment and competence</li> <li>• Patented and certified technology leader</li> <li>• Disruptive proven technology with equally disruptive business model</li> <li>• Scalable and adaptable solution for any diesel engine of any size in any industry</li> <li>• Geographic and industry diversification</li> <li>• Strong control over share structure</li> <li>• Product with unique array of benefits</li> <li>• High technological barrier gap of entry</li> </ul>	<ul style="list-style-type: none"> <li>• Previous product launch in 2017 was unsuccessful</li> <li>• Weak financial situation with negative cash flows</li> <li>• Currently low sales numbers</li> <li>• Company had to rebuild trust</li> <li>• Minimal sales result</li> </ul>
Opportunities	Threats
<ul style="list-style-type: none"> <li>• Total number of diesel engines across all industries not likely to diminish in the next few years</li> <li>• Tighter and more restrictive emissions legislation</li> <li>• Rising oil prices could lead to increasing demand for fuel efficiency technologies</li> <li>• Possibility of capturing the carbon credit market</li> <li>• Adoption rate of technology in the transportation industry well understood</li> <li>• Growth opportunity in different industries</li> <li>• Profitability should raise and provide healthy financial ecosystem for the company</li> </ul>	<ul style="list-style-type: none"> <li>• Decreasing oil price with global economy slowing down</li> <li>• Competition developing equivalent solution</li> <li>• Fast evolution from small R&amp;D company into international holding serving thousands of clients</li> <li>• Wide-spread product vectors all requiring specific and diverse toolsets</li> <li>• Extraordinary growth of expenses</li> <li>• International product delivery and distribution network maintenance</li> <li>• Maintenance of quality control with growing sales numbers</li> </ul>

### Technological approaches for Level-V environmental compliance

Trucking companies as well as manufacturers of diesel engines are finding it harder and harder to comply with environmental laws all over the world. The Dieselgate scandal is a direct result of the complexity and the high costs of achieving compliant emissions from diesel engines. The European Emission Standard defines the legal level of emission as the level a new diesel vehicle will emit. Other countries tend to adopt the same regulations but with an implementation delay.

#### HDD vehicle policy timelines



Source: Johnson Matthey Technol. Rev., 2015, 59, (2), 139

In order to achieve level-V environmental compliance, multiple solutions must be combined and attuned perfectly to work together. Each solution has its own specifications, optimal settings and requirements that increase the complexity and costs of the final system architecture.

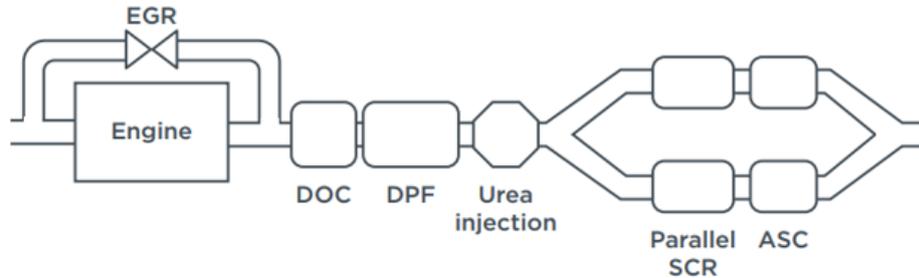
In order to meet the level-V regulations, here is a list of motor parts and the respective technologies that must be combined:

Motor Part	Technology required
Fuel injection equipment (FIE)	Electronic direct injection (EDI) High-pressure common rail @2000 bars (CR)
Air Handling (AH)	Turbocharge (TC) Wastegate (WG) Variable geometry (VGT) – 2 stage (2stT)
Exhaust gas recirculation (EGR)	Cooled externally (cEGR)
After treatment devices (ATD)	Diesel oxidation catalyst (DOC) Diesel particle filter (DPF) Selective catalytic reduction (SCR)

We are convinced that dynaCERT’s solution is unique, not only in the results it provides but in its simplicity. HydraGEN TM’s installation can be performed in three hours and is ready to use including mobile access. In order to achieve the same results as dynaCERT

on emissions reduction and fuel economy, fleet owners have to combine multiple engine customizations or opt to install the before mentioned motor parts which poses serious retrofit problematics.

**Projected after treatment system architecture for Stage V compliance**



Source: International council on clean transportation, 2018

Another important difference between the solutions of competitors and dynaCERT's is that a lot of them are passive systems, not optimized in real time with engine specifics. dynaCERT's real time monitoring and active management ensures maximum fuel economy and emission reduction at any moment and their ECU calibrates each HydraGEN™ unit to the specific engine it is linked to. This calibration allows HydraGEN™ to consider the actual state of the engine combustion system for each engine, thus enhancing its results.

Even when considering these complex systems, the progress in average fuel economy improvement has drastically slowed down for advanced economies and accelerated for emerging economies. If we look specifically at the light-delivery vehicles segment, the global fuel economy initiative is aiming at a fuel economy of 4.4L/100km in 2030. In order to achieve such results, the yearly improvement should be 3.7% from 2017 levels.

When examining the graph below, it becomes clear that reducing fuel consumption levels while maintaining compliance with hard emissions regulations will be a tough challenge. HydraGEN™ is released on the market with perfect timing, as manufacturers, truckers, and fleet managers are all trying to find reliable, tried and tested solutions to lower their fuel consumption and limit their emissions. dynaCERT should therefore benefit from the current market situation.

**Annual fuel economy realized per region and annual improvement year on year required to meet legislation**

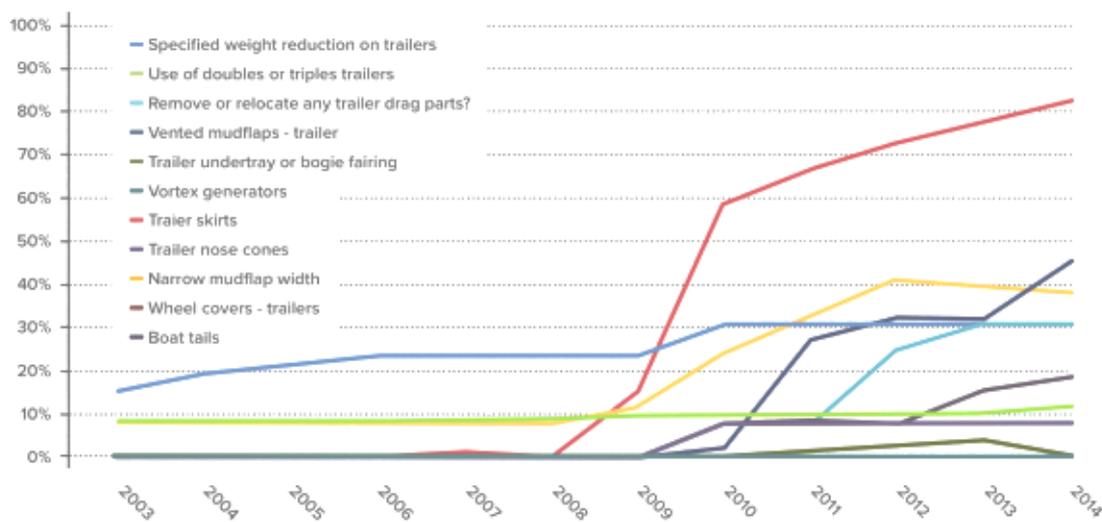
		2005	2010	2015	2017	2030
Advanced (Gasoline price ≥ USD 1/L)	average fuel economy (Lge/100km)	7.4	6.5	5.8	5.8	4.4
	annual improvement rate (% per year)	-2.4%		-2.5%	-0.1%	
<b>-2.0%</b>						
Advanced (Gasoline price < USD 1/L)	average fuel economy (Lge/100km)	11.0	9.5	8.6	8.6	
	annual improvement rate (% per year)	-2.9%		-1.9%	-0.4%	
<b>-2.0%</b>						
Emerging	average fuel economy (Lge/100km)	8.6	8.5	7.8	7.5	
	annual improvement rate (% per year)	-0.2%		-1.6%	-2.3%	
<b>-1.2%</b>						
Global average	average fuel economy (Lge/100km)	8.8	8.0	7.4	7.2	
	annual improvement rate (% per year)	-2.0%		-1.5%	-1.4%	
<b>-1.7%</b>						
<b>GFEI target</b>	Required annual improvement rate (% per year)	2005 base year	<b>-2.8%</b>			
		2017 base year				<b>-3.7%</b>

Source: IEA and ICCT (2019)

### ***New technology adoption process***

We can consider dynaCERT’s story to be comparable to the invention of the long-haul trailer side skirts. The product’s demand started gaining traction in 2008. At that moment, it provided truck drivers with fuel economies of around 6%. Accounting for the low price of fuel, the ROI on this product was around 30 months. During that year, less than 2,200 units were sold. In 2012, with a lower price of the product and the rising price of fuel, the ROI dropped to 11 months. This was the key element leading to mass adoption. In April 2013, there were over 180,000 side skirts installed on trailers in the USA alone and over 400,000 in June 2013. Sales more than doubled year to year once the ROI threshold of 1 year was crossed.

### **Tech adoption – trailer aerodynamics**



Source: NACFE

In 10 years, the average fleet adoption rate is close to 90% and statistics show that over 40% of new trailers incorporate side skirts aerodynamic systems. In the case of HydraGEN TM, we believe that the adoption period should be comparable or even faster. This is because, in contrast to the side skirts example, the truck owner has control over the installation of the HydraGEN TM technology and can benefit from fuel savings without third party involvement. DynaCERT will have to face the same important hurdles as did the trailer side skirts in order to reach mass adoption.

**HydraGEN TM'S main barriers to mass adoption as per the side skirts study**

Hurdle	Description	Actual state	Main event
1	Lack of credible information on fuel savings		November 20 <sup>th</sup> 2017 - Pit Group Report published
2	Uncertainty regarding payback period (capital cost vs. fuel savings)		HydroLytica tracks the exact savings Awaiting stamp of approval by big fleet owners massive adoption
3	Lack of access to capital		July 4 <sup>th</sup> 2019 - KarbonKleen subscription-based financing solution
4	Technology reliability and potential damage to equipment		Insurance policy in place for downtime and engine repair
5	Technology available from preferred suppliers.		In talks with the different truck manufacturers
6	EU certification		Europe: achieved ABE certification

Source: NACFE, dynaCERT, GBC-AG

**Hurdle 1) Lack of credible information on fuel savings**

This is most definitely the main reason for the company's atrophic sales over the past few years. Without credible certification and proof of concept, selling HydraGEN TM was nearly impossible. On November 20<sup>th</sup>, 2017, dynaCERT received the complete report for testing done by the PIT Group in Montreal. They also received ABE certification for the European market on August 26<sup>th</sup>, 2019, which, in itself, delivers a vote of confidence in the product.

**Hurdle 2) The ROI as tested is 9 months for a 15% fuel saving average**

DynaCERT has already confirmed the savings possible for truck owners through various engineering studies. The company has specifically designed their HydraLytica product with the objective of allowing the fleet manager to asset the HydraGEN performance. The companies will therefore gather valuable and precise ROI data once HydraGEN units are installed and running on their trucks. We believe that once fleet managers will start sharing their ROI numbers with their peers, we would expect sales to gain major momentum.

**Hurdle 3) With a price of over USD 8,000, lack of access to capital could prove to be a serious brake to HydraGEN TM's adoption**

As most freight trucking companies in the U.S. are small businesses with fewer than 20 employees, offering an alternative financing solution is vital to HydraGEN TM's success. On July 4<sup>th</sup> 2019, dynaCERT announced that they had secured a monthly payment-based financing solution for their HG145 line of product. Moreover, the financing option, available through Karbon Kleen Inc. in the US and Canada, offers a money-back guarantee. Customers who contract through their dealer for a minimum of two years are eligible for the money-back guarantee if their trucks drive a certain distance per month. If the fuel savings achieved through dynaCERT's technology do not cover the subscription costs for the technology, Karbon Kleen promises to refund the subscription price.

**Hurdle 4) Another hurdle that the company is tackling is concerning their product reliability and possible damage it could cause to the owner's equipment**

This is a barrier to adoption of every new technology that modifies currently used equipment. Understandably, truck owners do not want their major investment to be voided by

damage caused by dynaCERT’s products and their installation. The company’s management understood this issue from past endeavors and decided to contract a liability insurance policy. Under the policy terms, damage caused by HydraGEN TM to an engine are covered against the damage to the engine, downtime and loss of revenue. This safety net provides security and peace of mind. dynaCERT has also introduced very strong quality control elements as well as an extensive traceability program in order to be able to react as quickly and proactively as possible if any issue with their product were to occur.

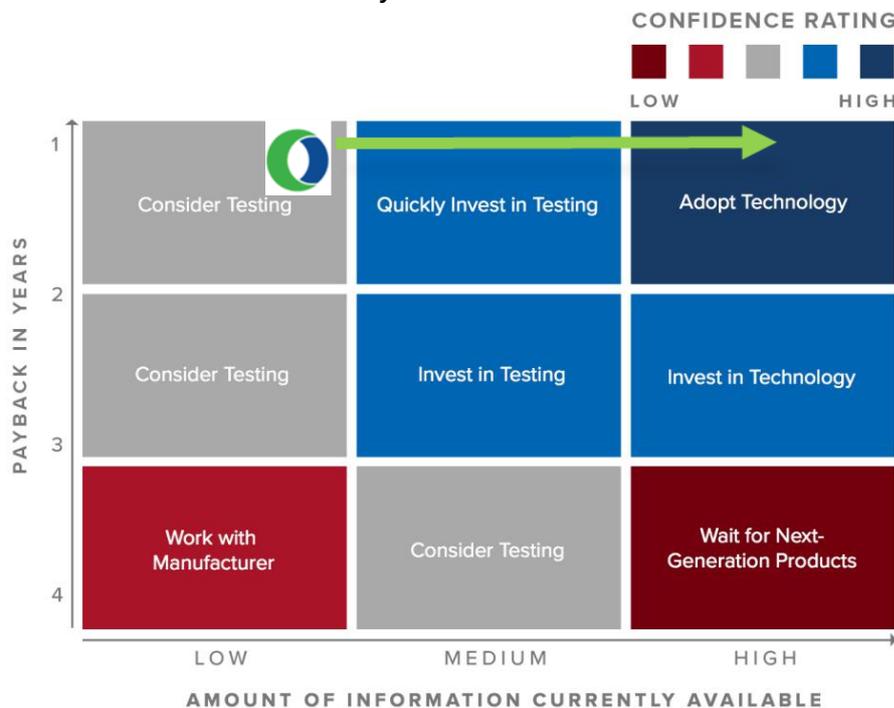
**Hurdle 5) dynaCERT’s last and perhaps their biggest hurdle is that their technology is not offered through their clients’ preferred suppliers**

This is clearly the last step in the mass adoption process. Once HydraGEN TM will be available through preferred points of sales, the adoption rate should rise drastically. Currently, the company is in talks with the major truck manufacturers (OEM) such as Cummins, Caterpillar, Mercedes, John Deere, Komatsu America, Volvo Trucks North America and many more. The first step that they are currently tackling is to have their product homologue in such a way that its installation would not void the manufacturers’ engine warranty when used as an aftermarket part and/or additive.

**Hurdle 6) The company has received its ABE certification**

The Federal Motor Transport Authority in Germany released its ABE certification for dynaCERT’s HydraGEN TM at the end of August 2019. This means that the HydraGEN TM products can now be sold and installed legally in Europe. We, therefore, expect that the company will now focus on the EU market and will soon see many new orders flowing in.

**Confidence matrix for trailer aerodynamics**

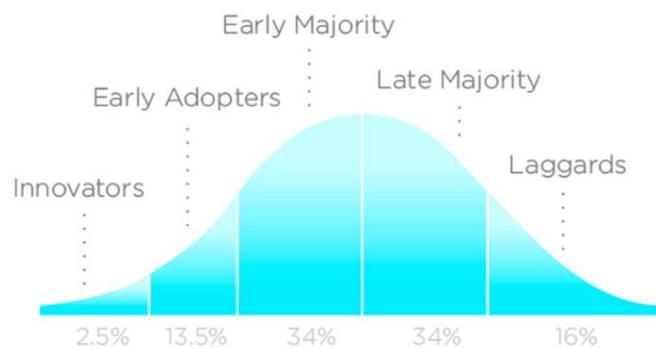


Source: NACFE, GBC-AG

HydraGEN TM’s mass adoption is well on its way and the last two hurdles that still need to be overcome are fundamentally linked to one another. When the current client base announces significant additional orders after trying HydraGEN TM on a small scale (a few units), it will serve as a stamp of approval for the rest of the industry. At that point,

the demand for the product will come not only from the top down but also from the bottom up, forcing manufacturers and retailers to offer the product to their clients. Inevitably, the adoption of the technology by only one of the biggest fleets in the USA (UPS, FedEx, Loblaw's, Amazon, etc.) could trigger the same effect. dynaCERT's innovation adoption lifecycle is now at its start, with a few innovators ordering dozens or hundreds of units. When this threshold is passed, sales should grow at an exponential rate until the early majority has also adopted it. Then sales will tend to continue to grow but at a slower rhythm until they stabilize once the market is saturated.

### Innovation adoption lifecycle



Source: Rogers, Everett (1962). *Diffusion of Innovations*

### Current corporate strategy

dynaCERT's current corporate strategy is to focus on the successful relaunch of its main product, HydraGEN TM. We believe that dynaCERT has entered the defining stage of its business model. With the ABE certificate in hand, the company can start focusing on raising their sales numbers and ensuring tight quality control. We expect that it will have been the last rope holding the company to the ground before their sales take off.

dynaCERT's team and management have been researching and developing their solution for over 15 years and the company has attained maturity that makes it ready for the next stage. We believe that building an international presence, sales and product identity is not something that happens easily. However, the amount of work performed, improvements made, and hurdles and challenges faced and overcome by the company over the last few years have strengthened our confidence that the company will succeed.

While the HydraGEN TM is a straightforward match to the trucking industry, the device can be used in other industries as well. Diesel engines are being employed in the rail, marine, oil and gas and mining sector as well as in stationary generators. dynaCERT's team is currently looking into all these industries and working on establishing relations with industry leaders, major corporations, manufacturers (OPMs), industry commissions and government bodies. They are getting their product tested and evaluated by official, third-party organizations, appraisers and experts in order to ensure type approval and homologation across multiple sectors. They have been granted CE marking approval and the FCC declaration of conformity as well as having received great test results from the PIT Group. They also received the ABE (Allgemeine Betriebserlaubnis) certification license from the German Government Transport Ministry (Kraftfahrtbundesamt KBA). Furthermore, they are in talks with major truck manufacturers in North America to ensure that using their products does not void the manufacturer's engine warranty and might even be offered through the manufacturer directly. They are also looking to expand into the marine sector. Since April 2018, dynaCERT has been pursuing Marine Classification Society Type Approval for its technology through Lloyd's Register. Expanding into the

marine sector could be potentially very lucrative for dynaCERT. There are over 90,000 commercial cargo ships currently in operation with a potential of close to \$1 million in sales per ship when outfitted with HydraGEN™ technology. Moreover, the environmental effect would be inflated given that one container ship easily equals the emissions of millions of cars per year.

## Forecast

P&L in USD m FY	31/12/2018	31/12/2019e	31/12/2020e	31/12/2021e
Sales	0.16	4.62	62.40	223.90
EBITDA	-16.75	-16.56	0.11	36.45
EBIT	-16.75	-16.56	0.11	36.45
Net income	-16.63	-16.68	0.11	36.71

Source: GBC AG

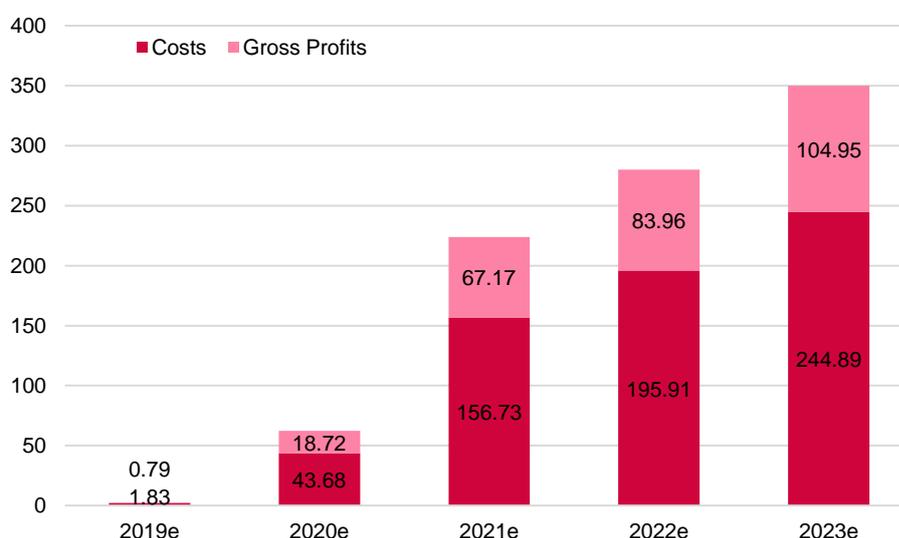
### Projected unit sales

After dynaCERT sailed through the 2017 storm and strengthened its supply chain, operations and business model, it now has a poised advantage over any competitor. The company is focusing on sales with the objective of becoming the world leader in hydrogen-based emissions reduction technology for diesel engines worldwide. With this possibility foreseeable within the next few years, it is all hands-on deck for dynaCERT.

### Projected revenues and margin for the next 5 years

The company expects to have a gross margin of 50% on every unit sold since HydraGEN™ components can be easily produced at a competitive price. However, for our projections we used a more conservative approach and limited the gross margin at 30%. Using this factor as the base of our calculations, we can, therefore, project that the company should achieve net profits of USD 0.13 million in 2020 and USD 36.7 million by 2021 year-end.

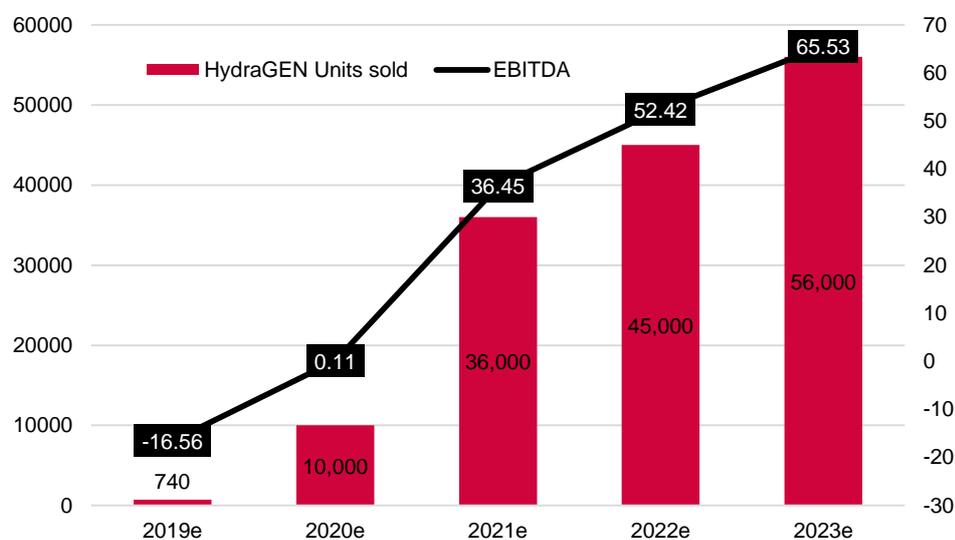
### Total revenues divided by costs and gross profits



Source: GBC AG

Our unit sales assessment is supported by the aforementioned study on the adoption rate for side skirts aerodynamics products. As we stated earlier, we believe that the adaption of HydraGEN™ could be even more rapid. However, for the purposes of our evaluation, we have planned an adoption rate of 50% after seven years, a scenario that we consider to be conservative. Also, since dynaCERT is protected by patents and has a very high barrier of entry, not just for the R&D but also for certification, we believe that they will be the only company offering this or equivalent products in the short and mid-term future, maximizing their market share.

### Yearly sales vs EBITDA



Source: GBC AG

We project that dynaCERT will be posting significant sales within the next few quarters. By year end 2019, we believe the company will have posted sales totaling 740 units for an aggregate revenue of USD 4.617 million and a gross profit margin of 30%.

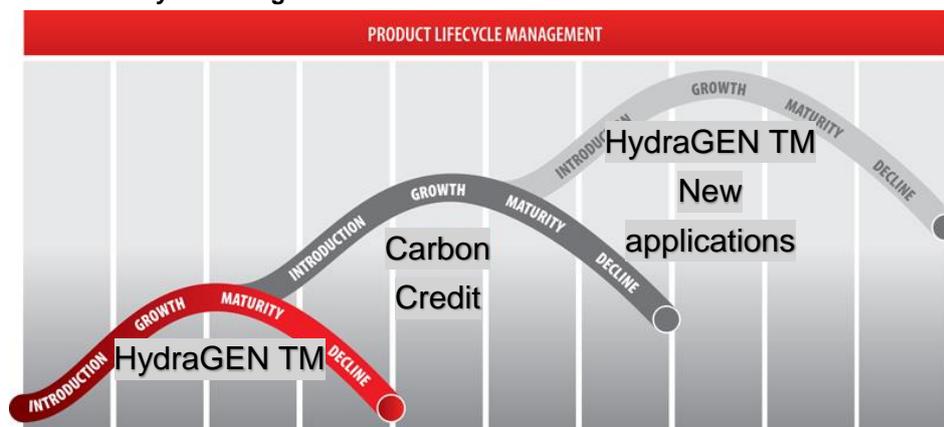
However, this year's projected sales will not be enough for the company to post their first profits. We expect dynaCERT to end the year with a loss of USD 16.667 million. This loss seems out of proportion with the revenues and operation of the company; however, a few factors can help understand the company burn rate. As the company is continuing improvements and R&D on the actual HydraGEN TM, applying for carbon credit certification and actively preparing the third phase of their product development, they have R&D expenditure of close to USD 5M per year. We project these numbers to only grow with time as more revenues will fuel more R&D expenses. Additionally, the company is developing a world distribution network, an activity that requires important investments in the first few years. We believe these expenditures will lower within the next few years once the network will attain maturity. The company has currently over 60 employees, accounting for over USD 2.6M in 2018. The company's share base compensation should also remain high for this year, totaling USD 3.5M. All these factors contribute to a FY 2019 mark with an important net loss. The company also has enough warrants and options outstanding to finance the FY 2019 loss with no or minimum market equity rise. However, these expenses are essential to fuel the projected massive sales numbers of 10,000 units for the FY 2020. We believe that the sales will gather important momentum through next year and reach sales of about 36,000 units by 2021.

The company has a facility ready to assemble over 12,000 units per month, for an annual production of 144,000 units. With an average sale price of over USD \$6,000, if the facility runs at full capacity, it could generate revenues of around USD 850 million annually. Per our projection of the company's future sales localization, we believe that in three years, the company will open assembly plants as joint ventures with local companies in Europe, Mexico and Asia. Since these sites will be assembly plants only and third-party partners are in charge of the product installation, we project the company to need only a minor capital expenditure to sustain our projected sales growth rate. The company also has a complete team in place to handle international sales and dynaCERT has signed contracts with a number of different distributors, installation and service partners. By doing so, the company is copying proven distribution models with high margins.

Since the company has already hired all the personnel required to pilot the next growth phase, we believe that their expenses will not grow out of proportion to their revenues. We should see dynaCERT to break-even within the next 3 years and its net margins to grow substantially during the next few years.

We further believe that once the adoption rate for HydraGEN TM has reached over 30%, a new major income vector will come into play for the company: carbon credits. With its second separate product well into the finishing phase, dynaCERT should be ready to launch its carbon credit management system within a few quarters and start generating additional income.

### Product lifecycle Management



Source: IMS Marketing

Product A - HydraGEN TM

Product B - Carbon credit management system HydraLyrica TM

Product C - Other residential/industrial electrolysis applications under development

As stated previously, no known competitor can offer a product that combines fuel savings with carbon credit generation. This carbon credit revenue sharing system could surpass the revenues from the sale of HydraGEN TM units within a few years. It will also protect HydraGEN TM sales from depending on oil prices for a fast ROI. This will ease the decisions for managers to acquire a HydraGEN TM unit and actually accelerate its adoption rate. We project that this line of business could grow to a yearly total of between USD 500M and USD 1b, depending on the carbon credit price assumptions. It is important to note that our DCF model excludes this massive possible income vector because it is very difficult to cypher at the moment.

**dynaCERT is more than an emission reduction company. It has completed the research and development of three distinct products (HydraGEN TM, HydraLyrica TM and their carbon credit management system), each requiring their own set of specialized competences in various fields.**

**The company has successfully developed a suite of products that can act as their own ecosystem for the transportation industry including emissions reduction, fuel efficiency and a fleet management solution while providing the client with a steady source of income with its carbon credit management program. Not only is each product unique in a standalone fashion, but when combined, we believe that we could be witnessing the birth of a giant.**

## VALUATION

### Model assumptions

We rated DynaCERT Inc. using a three-stage DCF model. Starting with the concrete estimations for 2019, 2020, and 2021 in phase 1, in the second phase, from 2022 to 2026, our forecast uses value drivers.

Here we expect a sales increase of 25.0 %. We have assumed an EBITDA margin target of 18.7%. We have taken into account average tax rates of 15.0 %. Additionally, a residual value is determined in the third phase by using the perpetual annuity by the end of the forecast horizon. As the final value, we assume a growth rate of 2.0%.

### Determination of capital costs

The weighted average cost of capital (WACC) of DynaCERT Inc. is calculated using equity costs and debt costs. The market premium, the company-specific beta, as well as the risk-free interest rate have to be determined in order to determine the equity cost.

The risk-free interest rate is derived in accordance with the recommendations of the expert committee for company valuations and business administration (FAUB) of the IDW (Institut der Wirtschaftsprüfer in Deutschland e.V.) from the current interest rate yield curves for risk-free bonds. The zero bond interest rates according to the Svensson method published by the German Federal Bank form the underlying basis. To smooth out short-term market fluctuations, we use the average yields over the previous three months and round up the result to 0.25 basis points.

**The value of the currently used risk-free interest rate is 1.00%.**

We set **the historical market premium of 5.50%** as a reasonable expectation of the market premium. This is supported by historical analyses of stock market returns. The market premium reflects the percentage by which the stock market is expected to be more profitable than low-risk government bonds.

According to GBC estimates, we have determined a beta of 2.13.

Based on these assumptions, the calculated equity costs amount to 12.72% (beta multiplied by the risk premium plus the risk-free interest rate). Since we assume a sustainable weighting of the equity costs of 100% (target ratio), the resulting weighted average costs of capital (WACC) amount to 12.72%.

We calculated with a fully diluted number of shares of 349.11 million shares and calculated therefore in our model with a capital inflow due to warrants of 32.25 million USD

### Evaluation result

The discounting of future cash flows is based on the entity approach. In our calculation, the result for the corresponding weighted average costs of capital (WACC) is 13.6%. The resulting fair value per share at the end of the 2020/21 financial year corresponds to the target price of 1.90 CAD (1.43 USD; 1.30 €). This target price is valid until 31/12/2020 or until a previous change or update of the valuation model.

CAD to USD Conversion: 1 CAD = 0,754831 USD (16.09.2019 - 15:35 UTC)

CAD to EUR Conversion: 1 CAD = 0,686185 EUR (16.09.2019 - 15:35 UTC)

## DCF-Modell

### DynaCERT - Discounted Cashflow (DCF) model

Value driver of the DCF model after the estimate phase:

consistency - Phase	
Sales growth rate	25.0%
EBITDA-Margin	18.6%
Depreciation to fixed assets	8.5%
Working Capital to Sales ratio	10.0%

final - Phase	
Eternal growth rate	2.0%
Eternal EBITDA-Margin	18.2%
Eternal effective tax rate	15.0%

### Three phases - Model:

Phase in m CAD	estimate			consistency					final Terminal value
	FY 19e	FY 20e	FY 21e	FY 22e	FY 23e	FY 14e	FY 25e	FY 26e	
Sales	2.62	62.40	223.90	279.87	349.84	437.30	546.62	683.28	
Sales changes	-264.5%	2283.9%	258.8%	25.0%	25.0%	25.0%	25.0%	25.0%	2.0%
Sales to fixed assets	0.69	7.80	14.93	14.93	14.93	14.93	14.93	14.93	
EBITDA	-16.56	0.11	36.45	52.09	65.11	81.39	101.73	127.17	
EBITDA-Margin	-632.6%	0.2%	16.3%	18.6%	18.6%	18.6%	18.6%	18.6%	
EBITA	-16.56	0.11	36.45	50.81	63.52	79.39	99.24	124.05	
EBITA-Margin	-632.6%	0.2%	16.3%	18.2%	18.2%	18.2%	18.2%	18.2%	18.2%
Taxes on EBITA	0.00	0.00	-5.47	-7.62	-9.53	-11.91	-14.89	-18.61	
Taxes to EBITA	0.0%	0.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%	15.0%
EBI (NOPLAT)	-16.56	0.11	30.98	43.19	53.99	67.49	84.36	105.45	
Return on capital	-1.61	0.01	1.31	1.16	1.16	1.16	1.16	1.16	94.3%
Working Capital (WC)	9.00	15.60	22.39	27.99	34.98	43.73	54.66	68.33	
WC to Sales	343.8%	25.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	
Investment in WC	-1.91	-6.60	-6.79	-5.60	-7.00	-8.75	-10.93	-13.67	
Operating fixed assets (OAV)	3.80	8.00	15.00	18.75	23.44	29.30	36.62	45.78	
Depreciation on OAV	0.00	0.00	0.00	-1.28	-1.59	-1.99	-2.49	-3.11	
Depreciation to OAV	0.0%	0.0%	0.0%	8.5%	8.5%	8.5%	8.5%	8.5%	
Investment in OAV	-0.61	-4.20	-7.00	-5.03	-6.28	-7.85	-9.81	-12.27	
Capital employed	12.80	23.60	37.39	46.74	58.42	73.03	91.28	114.10	
EBITDA	-16.56	0.11	36.45	52.09	65.11	81.39	101.73	127.17	
Taxes on EBITA	0.00	0.00	-5.47	-7.62	-9.53	-11.91	-14.89	-18.61	
Total investment	-2.53	-10.80	-13.79	-10.62	-13.28	-16.60	-20.75	-25.93	
Investment in OAV	-0.61	-4.20	-7.00	-5.03	-6.28	-7.85	-9.81	-12.27	
Investment in WC	-1.91	-6.60	-6.79	-5.60	-7.00	-8.75	-10.93	-13.67	
Investment in Goodwill	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Free cash flows	-19.09	-10.69	17.19	33.84	42.30	52.88	66.10	82.63	982.48

Value operating business (due date)	576.00	659.93
Net present value explicit free cash flows	150.94	180.82
Net present value of terminal value	425.06	479.11
Net debt	-13.46	-2.77
Value of equity	589.46	662.70
Minority interests	0.00	0.00
Value of share capital	589.46	662.70
Outstanding shares in m (fully diluted)	349.11	349.11
Fair value per share in CAD	1.69	<b>1.90</b>
Fair value per share in USD	1.27	<b>1.43</b>
Fair value per share in EUR	1.16	<b>1.30</b>

### Cost of Capital:

Risk free rate	1.0%
Market risk premium	5.5%
Beta	2.13
Cost of Equity	12.7%
Target weight	100.0%
Cost of Debt	1.0%
Target weight	0.0%
<b>WACC</b>	<b>12.7%</b>

Return on capital	WACC CAD				
	12.1%	12.4%	12.7%	13.0%	13.3%
93.8%	2.02	1.95	1.89	1.83	1.78
94.0%	2.02	1.96	1.89	1.84	1.78
94.3%	2.03	1.96	<b>1.90</b>	1.84	1.78
94.5%	2.03	1.96	1.90	1.84	1.79
94.8%	2.04	1.97	1.91	1.85	1.79

Return on capital	WACC USD				
	12.1%	12.4%	12.7%	13.0%	13.3%
93.8%	1.52	1.47	1.43	1.38	1.34
94.0%	1.53	1.48	1.43	1.39	1.34
94.3%	1.53	1.48	<b>1.43</b>	1.39	1.35
94.5%	1.53	1.48	1.44	1.39	1.35
94.8%	1.54	1.49	1.44	1.39	1.35

## ANNEX

### I.

#### **Research under MiFID II**

1. There is a contract between the research company GBC AG and the issuer regarding the independent preparation and publication of this research report on the issuer. GBC AG is remunerated for this by the issuer.
2. The research report is simultaneously made available to all interested investment services companies.

### II.

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#### **Section 2 (I) Updates**

A detailed update of the present analysis/analyses at any fixed date has not been planned at the current time. GBC AG reserves the right to update the analysis without prior notice.

#### **Section 2 (II) Recommendation/ Classifications/ Rating**

Since 1/7/2006 GBC AG has used a 3-level absolute share rating system. Since 1/7/2007 these ratings relate to a time horizon of a minimum of 6 to a maximum of 18 months. Previously the ratings related to a time horizon of up to 12 months. When the analysis is published, the investment recommendations are defined based on the categories described below, including reference to the expected returns. Temporary price fluctuations outside of these ranges do not automatically lead to a change in classification, but can result in a revision of the original recommendation.

**The recommendations/ classifications/ ratings are linked to the following expectations:**

BUY	The expected return, based on the derived target price, incl. dividend payments within the rel 10%.
HOLD	The expected return, based on the derived target price, incl. dividend payments within the rel 10% and < + 10%.
SELL	The expected return, based on the calculated target price, incl. dividend payments within the <= - 10%.

GBC AG's target prices are determined using the fair value per share, derived using generally recognized and widely used methods of fundamental analysis, such as the DCF process, peer-group benchmarking and/or the sum-of-the-parts process. This is done by including fundamental factors such as e.g. share splits, capital reductions, capital increases, M&A activities, share buybacks, etc.

**Section 2 (III) Past recommendations**

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**Section 2 (IV) Information basis**

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