



Making Green Energy available for all

September 2023

www.storagedrop.com

About Storage Drop



Storage Drop is an innovative company for **I-CAES (“Isothermal Compressed Air Energy Storage”)** and **LDES (“Long Duration Energy Storage”)** systems.



Storage Drop operates in the field of Energy Storage and develops several products with a potential for significant ecological advantage in the energy industry to address a wide range of applications including but not limited to:

1. Power generation (“**HyDrop**”)
2. Air compression (“**DropX**”).
3. CO2 based chiller (“**CoolDrop**”) for refrigeration applications using direct compression of CO2 with water.



The systems are based on **isothermal hydraulic piston technology** (direct compression of air/CO2 with water) and are highly efficient, with extended life expectancy and low maintenance costs.



The main advantage is power savings compared to other existing systems.

Allowing continuous energy production from natural resources

Storage Drop develops i-CAES Energy Storage Systems



6 million US\$

Raised as part of the merger led by Leumi partners

30
Employees and
Service
Providers



Patent Applications Filed in the U.S.
Gained the rights to commercialize a patented technology developed in a US DOE laboratory.


Strategic Cooperation Agreements



The Challenge



**Low-Cost
CAPEX and
OPEX**



**Long
Duration
Storage**



**Green
Solution**



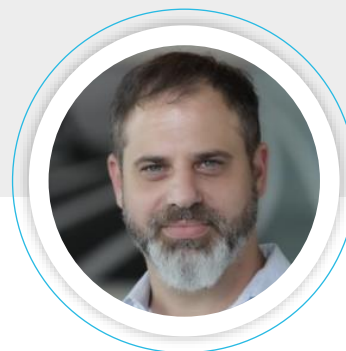
**High
Efficiency**

Management Team



Jacques Busbib
VP Projects

Holds an M.Sc. In Energy Engineering from the National Institute of Applied Sciences (INSA Lyon).
Extensive experience of more than 25 years as VP Projects – Senior Project Manager in several large EPC Renewable Energy projects in the USA and Israel. Served for 14 years as VP Projects of BrightSource Energy



Shay Cohen
CEO

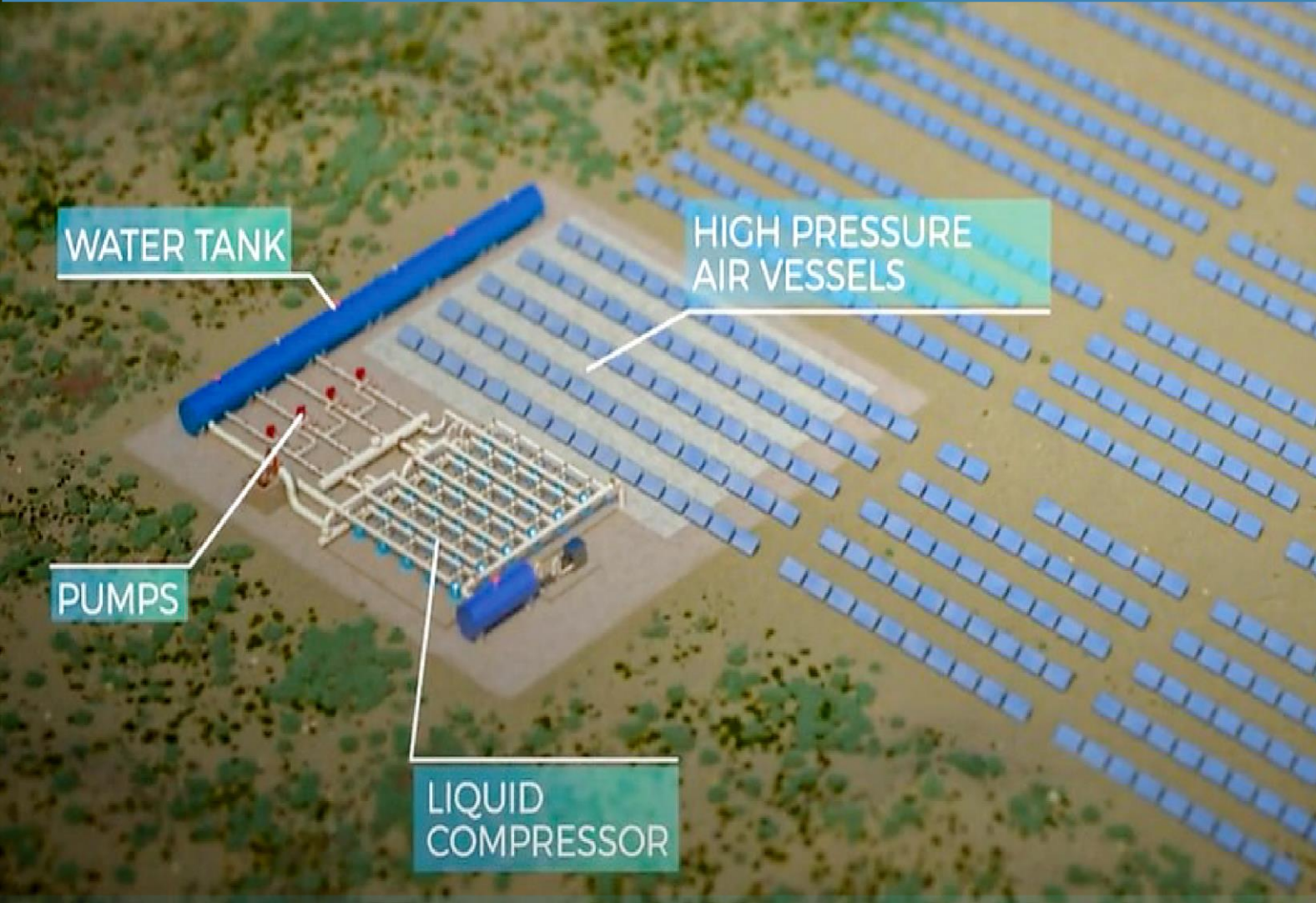
B.Sc. and M.Sc. in Mechanical Engineering from the Technion. He has extensive experience in designing and developing renewable energy systems. During his career, he served in senior positions at Bright Source Energy, Intel and Swap Technologies - Energy Storage.



Yona Fogel
Chairman

Holds a master's degree in psychology, specializing in organizational consulting. He completed his military service as a military psychologist with the rank of major. Served for 13 years as CEO of Paz Group and Chairman of the Board of Directors of its subsidiaries. Prior to that, he served as a member of the Board of Directors of Bank Leumi and head of the Banking Division. Today, Fogel deals, among other things, with international energy projects.

HyDrop - Energy Storage for electricity generation



Ashdod Port Demonstrating Compression of Air in Isothermal Process



Ashdod Port Demonstrating High Pressure Compressed Air Storage



Ashdod Port Demonstrating electricity generation (100 KWh)



Hydraulic Turbine

Compressed Air

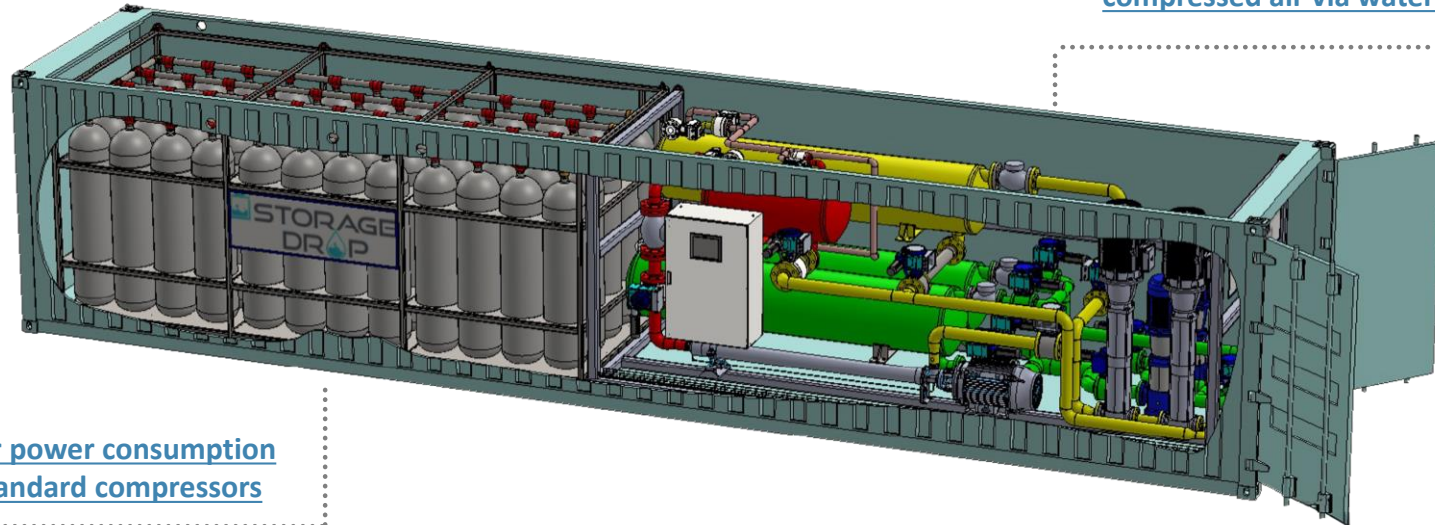


DropX: HyDrop Charger as Air Compressor

- ✓ The **DropX** technology is a unique Hydraulic “green” isothermal compressor.
- ✓ The compressor is based on water pump compressing the air in an isothermal process, generating compressed air at a higher efficiency than other standard air compressors.
- ✓ This air compressor is a game changer in the air compressors industry and can provide factories with significant cost savings in electricity and maintenance together with a longer life expectancy.

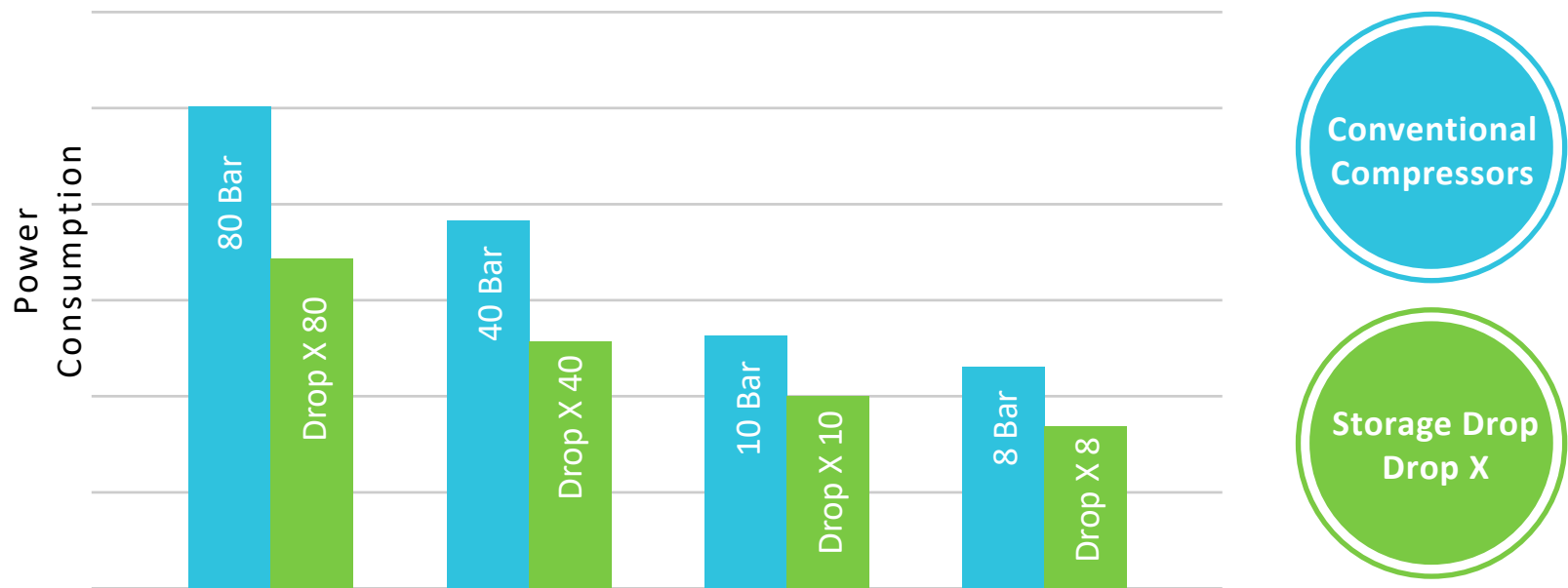
Highly efficient and durable


“Green” isothermal Compressor, generating compressed air via water piston




Significant lower power consumption compared to standard compressors

Drop X: Storage Drop Liquid Compressor versus Conventional Air Compressor – the competitive advantage





Drop X: Storage Drop
Liquid Compressor
versus Conventional
Air Compressor – the
competitive
advantage

	DROPX	Conventional
Maintenance	Low	High
Life Span	4 x longer	Limited
Efficiency	High	Low
Size	X3	Small
Noise Level	Low	High
Environment	Oil Free	Polluting

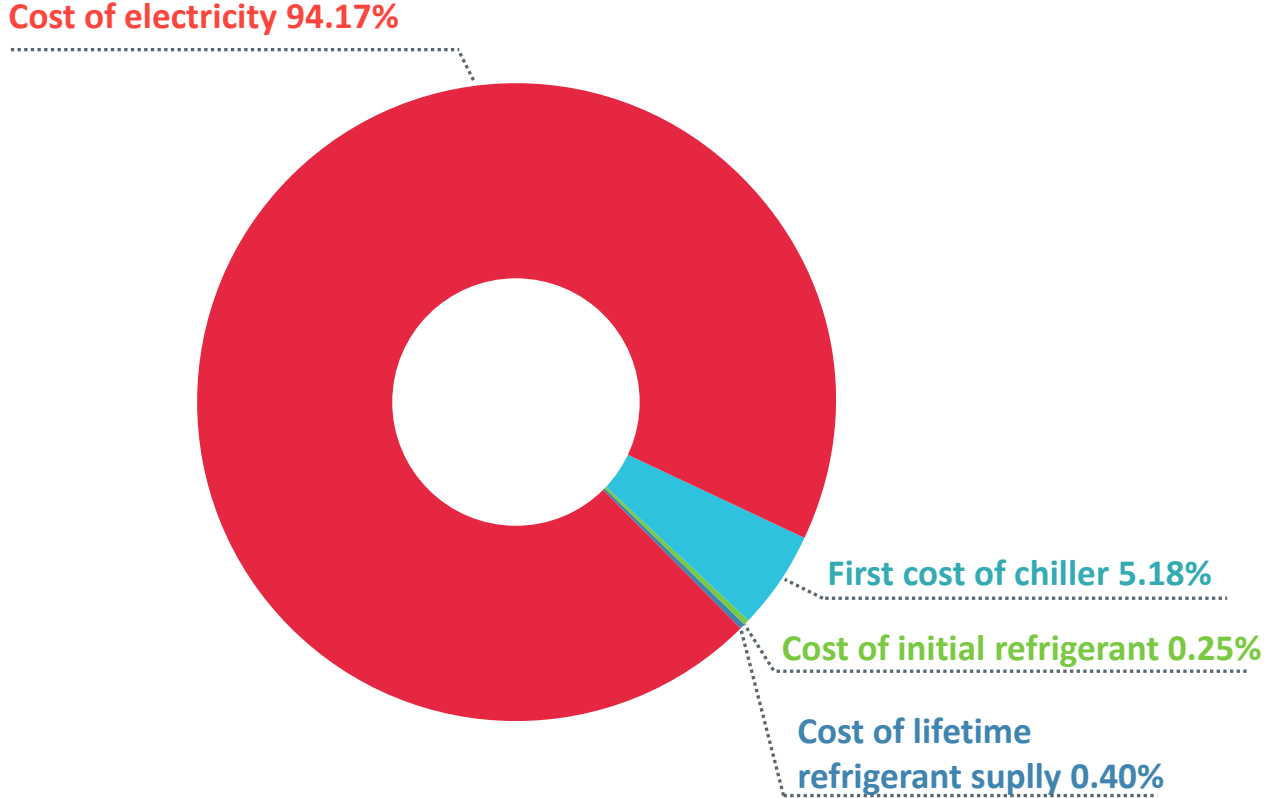
CO2-based CoolDrop cold production system for cooling applications



High cost of electricity



What is really important over the life of the chiller?



CO₂-based CoolDrop cooling system

Storage Drop develops CO₂ based chiller (“CoolDrop”) for refrigeration applications using direct compression of CO₂ with water.

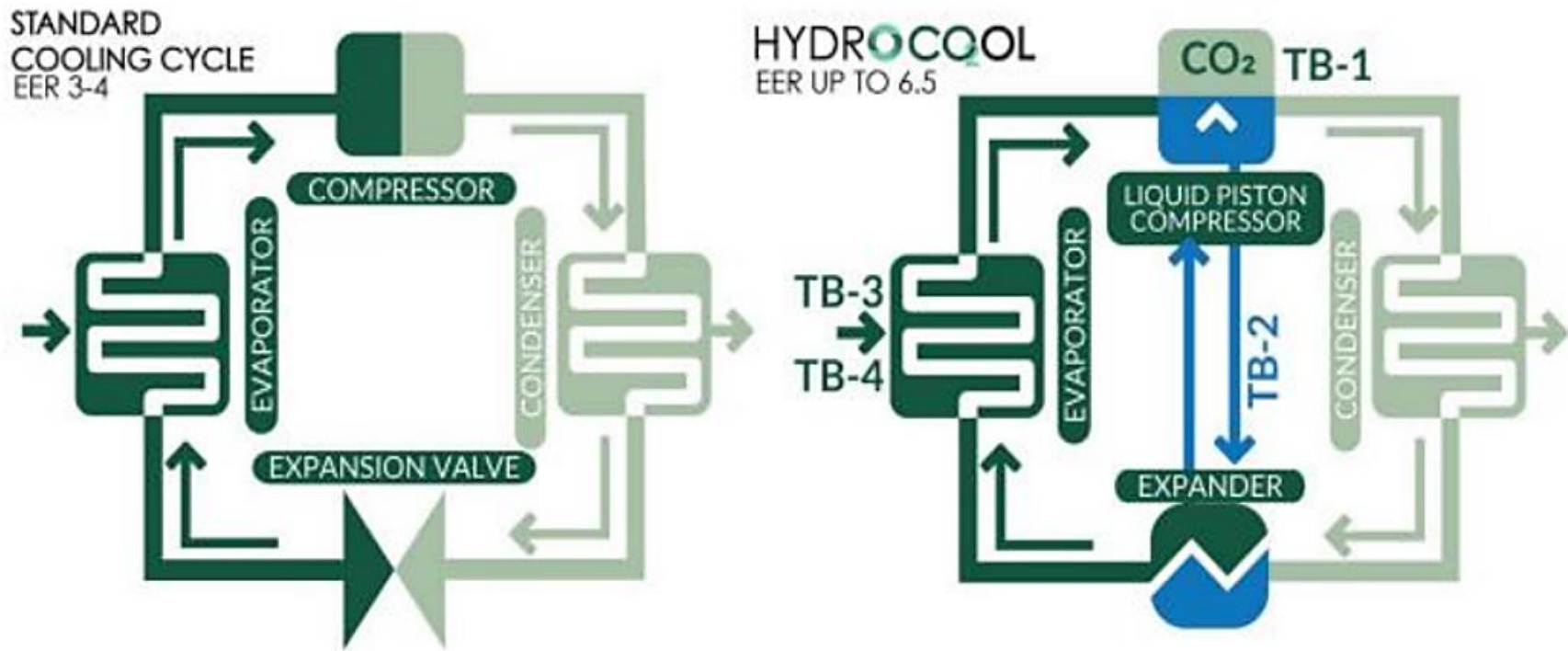
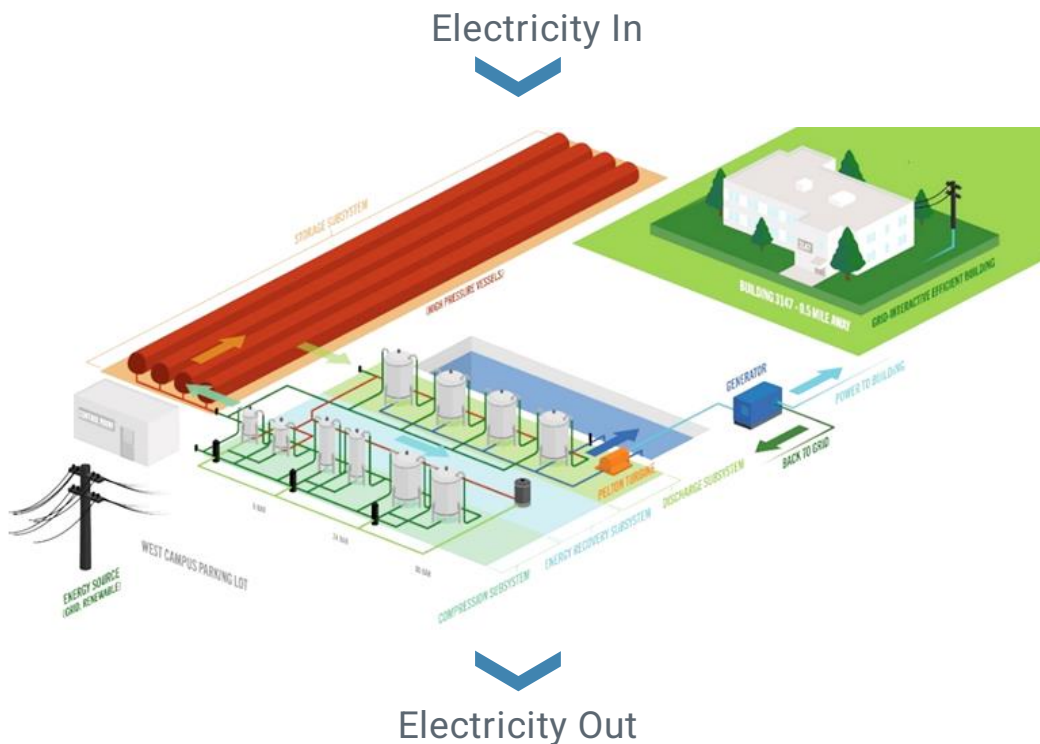


Figure 1- SD diagram vs conventional CO₂ diagram.

Storage Drop – Product 1:

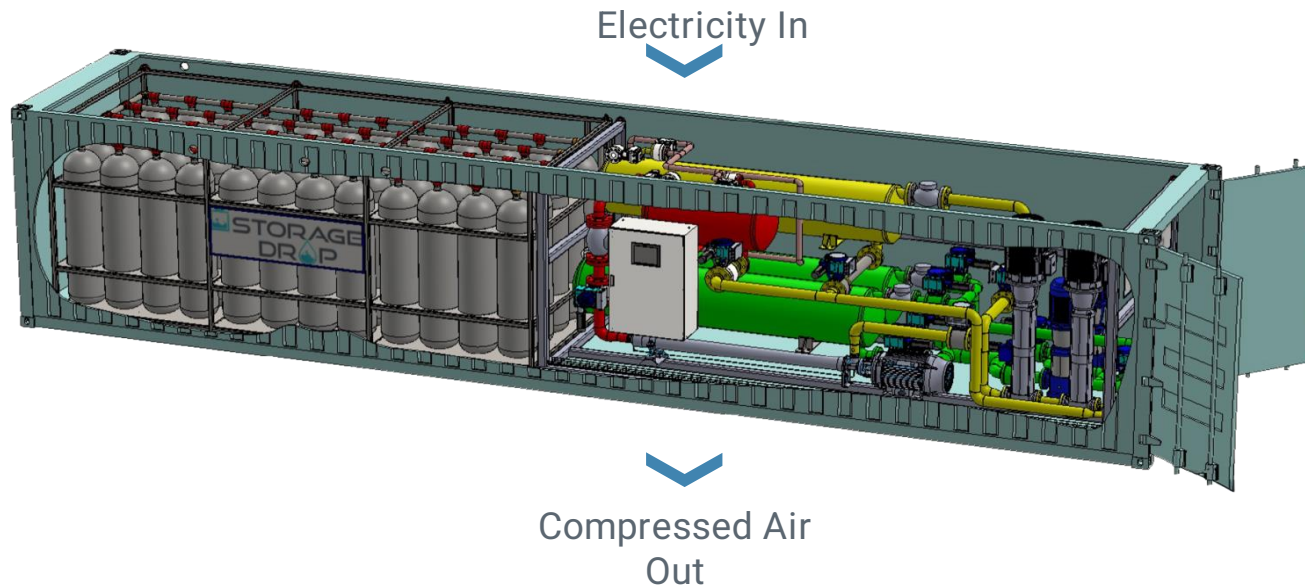
HyDrop - Energy Storage System For electricity generation.



- **Estimated Cost of construction** = multiply size in \$ per kilowatt-hour by Plant size. For example, a system of 150 MWh will cost $408 * 150 = 61$ MUS\$.
- **Operating cost** = 2 percent of the construction cost, this is the cost of maintenance and operation per year in dollars.
- **Revenue model** = depends on the destination country.

Storage Drop – Product 2:

DropX - compressed air production and storage system (air compressor)

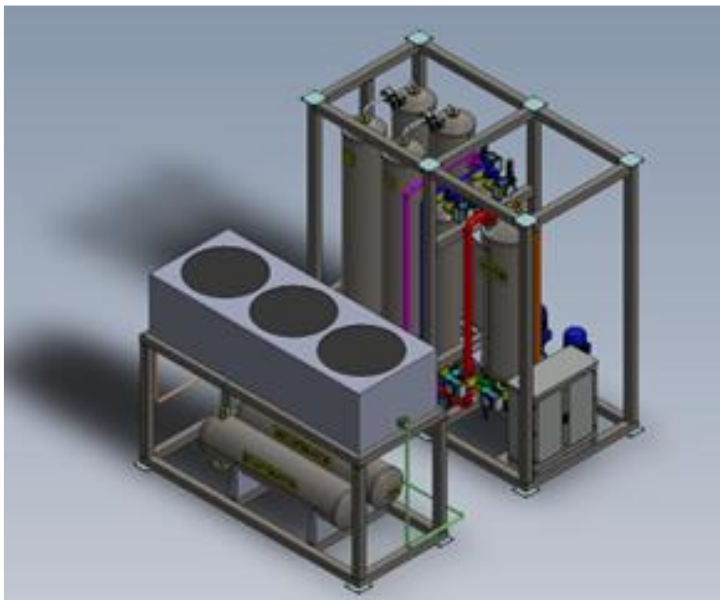


- Thanks to power savings compared to a standard compressor, Storage Drop's compressor returns the initial investment after 2 to 6 years of operation, depending on the size and delivery pressure of the compressor

Storage Drop – Product 3:

CoolDrop – CO2 based cooling system and storage for air conditioning purposes.

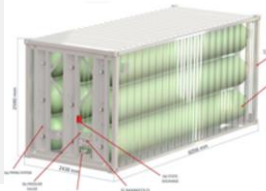
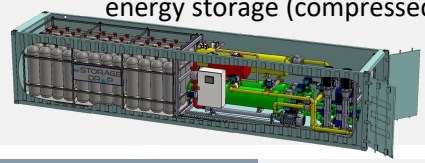
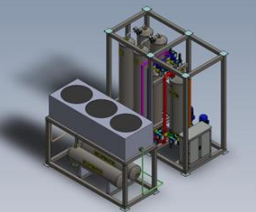
Electricity In



Cold water at 4 degrees C out

- With energy savings compared to standard chillers, Storage Drop's chiller returns the initial investment after 2 years of operation

Supply of products inside containers

Product	Goal	Containers	Advantage
HYDROP	Energy Storage and Power Generation	 <p>High pressure energy storage containers (compressed air)</p>	<ul style="list-style-type: none"> ✓ Off-site system production ✓ Plug & Play system connection ✓ Possibility to install containers on several levels to save space ✓ Product standardization
DROPX	Compressed Air storage and compressed air generation	 <p>Air compression container and energy storage (compressed air)</p>	
COOLDROP	Cooling storage and cooling power generation	 <p>Chiller container (cold production)</p>	

Business Model

Product	Goal	Market	Business Model
HYDROP	Energy Storage and Power Generation	Electricity generation during peak hours when no alternative energy source is available	Electricity sales at peak tariffs (evening hours)
DROPX	Compressed Air storage and generation	Industrial plants consuming compressed air (food, pharma, semiconductors...)	System manufactured/installed by SD at no cost to the customer. Revenues from the sale of compressed air based on actual measured quantities + % of electricity cost savings
COOLDROP	Cooling storage and generation	Air conditioning systems, refrigeration rooms, data centers...	System manufactured/installed by SD at no cost to the customer. Revenues from the sale of Ton of refrigeration based on actual measured quantities + % of the electricity cost savings

Projects Completed



HYDROP:
Ashdod Port – Demo Pilot
HYDROP 100 KW



:COOLDROP
Rehovot Demo Pilot
CoolDrop 5 TR

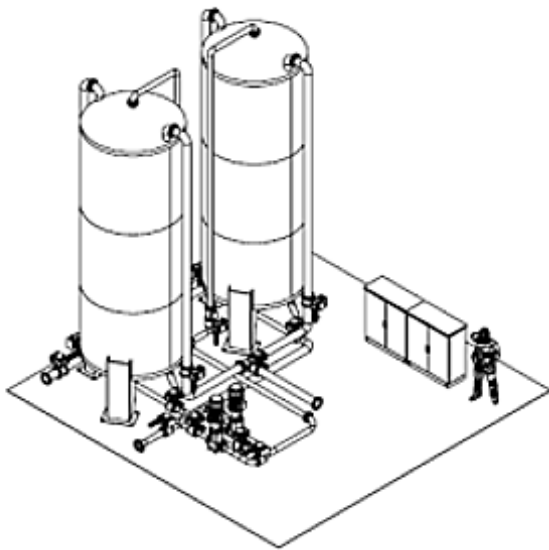
Projects in progress



- TNUVA Elon Tavor, DropX8 Air Compressor
- Kibbutz Maale Gilboa, HyDrop 1MWh + Fish Ponds Oxidation
- Ashdod Port – HyDrop Vehicle Fast Charging Experiment

Project in progress: TNUVA Elon Tavor DropX8

Compressor 8 Bar

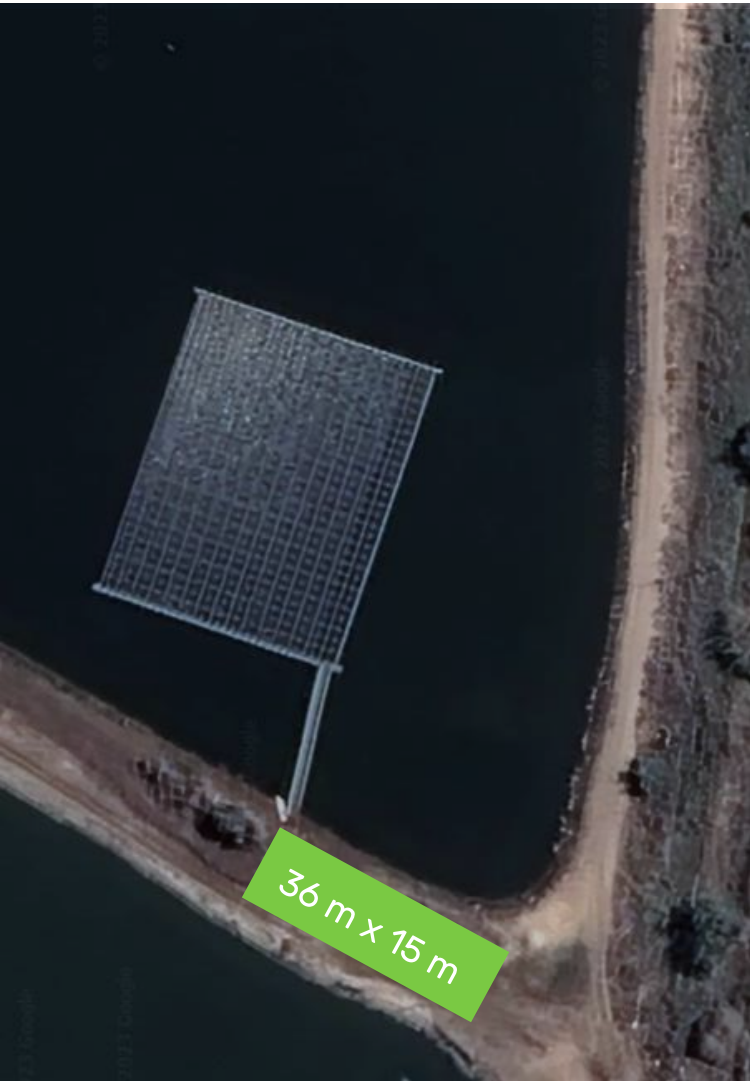


- Delivery of a DROPX8 compressor that implements i-CAES technology developed by Storage Drop
- Process data: 3360 NM3 per hour; 8 bar.
- **Work contents by Storage Drop**
- Design, manufacture, supply and installation of DropX8 compressor
- Operating the compressor, selling the compressed air in actual measurement quantities + 50% of power savings

Business model:

- The system is manufactured and installed by SD at no cost to the customer.
- Revenues from the sale of compressed air based on actual measured quantities + 50% of the electricity cost savings (250 kW installed power vs 350 kW for a standard compressor)
- 15-year contract

Project in progress: Kibbutz Ma'ale Gilboa HyDrop



- Provide energy storage (100 KWh) and **oxidation of fishponds via bubbling of compressed air into the ponds.** Currently, in Israel, the use of PV panels over fishponds is limited to 30% of the area by the Ministry of Agriculture.
- The project will allow for an increase of up to 50% of the pond area, representing a huge potential for both fish farmers and PV Plant operators.

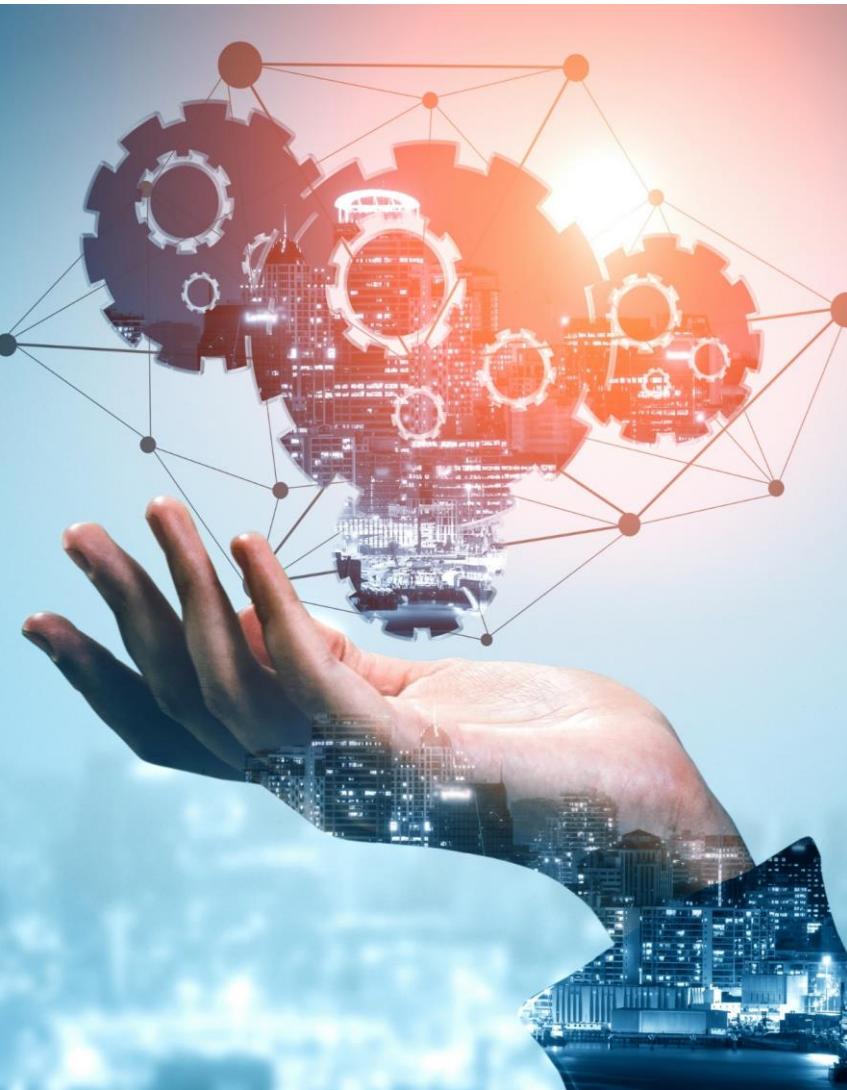
Work Contents by Storage Drop:

- Design, production, supply and installation of an energy storage system for production
- HyDrop Power Operation of a storage system connected to a floating field, selling
- Electricity in actual measurement amounts.

Business model:

- The project is a test case to validate the technology for connection to a PV field and application to fishponds. No significant revenue expected but, if successful, the potential is huge.

Projects in pipeline



Grants in the approval process:

- U.S. Department of Energy – HyDrop 1MWh – \$1.5 million Q4 2023
- European Union – - Heat Pump 1 million Euros Q1 2024

Cooperation under evaluation

- AISIN TOYOTA

Active processes:

(Under evaluation after proposal submittal)

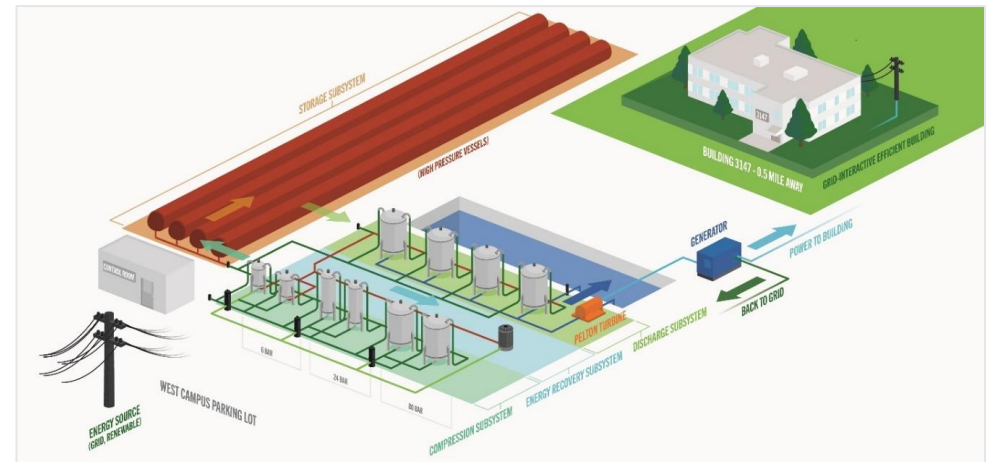
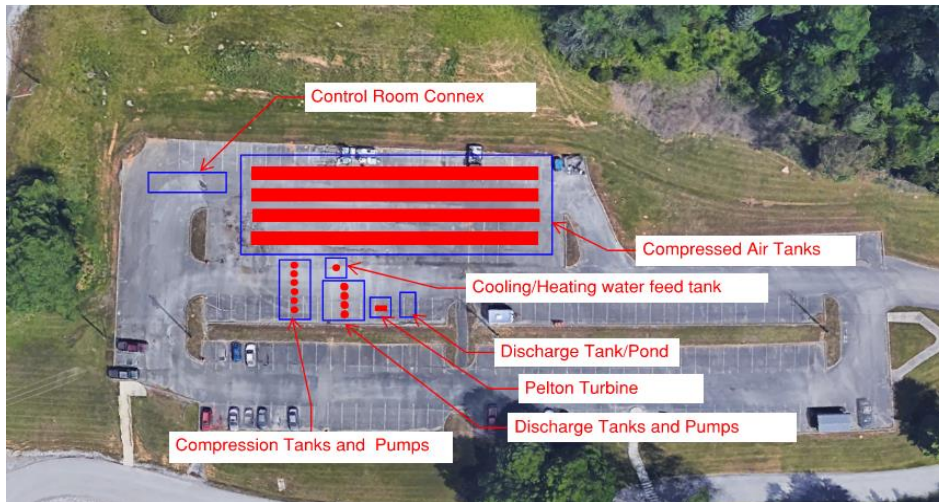
- DropX40- Beverage companies
- DropX8 chemical companies
- CoolDrop 200TR Process companies
- Shanghai Duanling Chinese Infrastructure Group

Oak Ridge National Laboratory (ORNL) – 1 MWh HyDrop Demo System

ORNL is the largest DOE science and energy laboratory, conducting basic and applied research to deliver transformative solutions to compelling problems in energy and security.

Joint Project ORNL – Storage Drop

- “Testing and Validation of innovative LDES systems at National Lab Facilities” under DOE Grant Program
- 4 MUS\$ Project to demonstrate Long Duration (>10 hours) Energy Storage Technology
- Project duration 2.5 years



Storage Drop Scope

- Design, Manufacture and deliver to ORNL site the skids for compression, storage and discharge including Hydraulic turbine.

ORNL scope

- Skids Assembly and installation on site
- Commissioning and testing (with SD support)

AISIN TOYOTA Global Japanese Group - 100 KWh HyDrop Demo System

The client is headquartered in Japan and is a Fortune Global 500 company that develops and produces components and systems for the automotive, lifestyle, and energy industries. The client is a global company with a network spanning over 20 countries including 203 companies in Japan, Asia, Oceania, Europe, Africa, North and South Americas.

Storage Drop / Client Joint Scope

- Design, Manufacture and install upgrade to existing system.
- 6 months program

Client scope

- Test and validate the system and technology

- Existing HyDrop system currently installed at Ashdod port, to be upgraded to match Japanese Group “Testing and Validation” requirements. Once system has been validated, technology will be installed and commercialized in Japan.





Thank you!

Storage Drop Technologies

Making green energy available
for All.



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