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Business Case for
Natural Refrigerants

04/09/2018 – Singapore



Jason Yeo

Chairman, MCLean Technologies

Introduction



JASON YEO HOCK HUAT

Founder and Executive Chairman, **MClean Technologies**

Mr. Yeo has over 25 years of business experience, a solid track record at identifying and investing in innovative technology projects with enormous commercial potential.

Mr. Yeo founded JCS in 1990 and led JCS to be a multinational group company with growing businesses in various deep-tech industries.



Mclean Technologies Berhad

Founded: 2006

IPO: 2010

Precision cleaning and surface treatment provider for components that require a high level of precision cleaning such as hard disk drive, media cassettes, medical devices, etc.

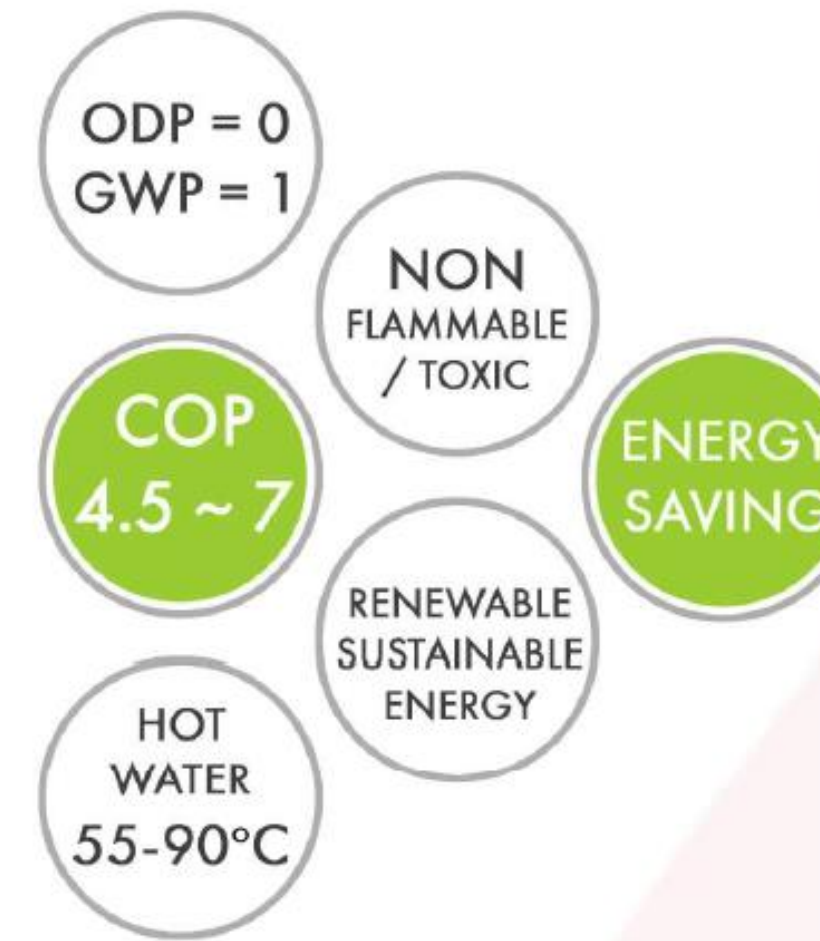
**MCLEAN
TECHNOLOGIES
BERHAD**



Adoption of Natural Refrigerant

MClean's uses ultra-clean distilled water that must be heated to 60°C to clean electronic components such as semiconductors and hard disk drives. Until the trial, the company had always used electric resistance water heating.

ECOSTAR CO₂ Solution Water-Source System



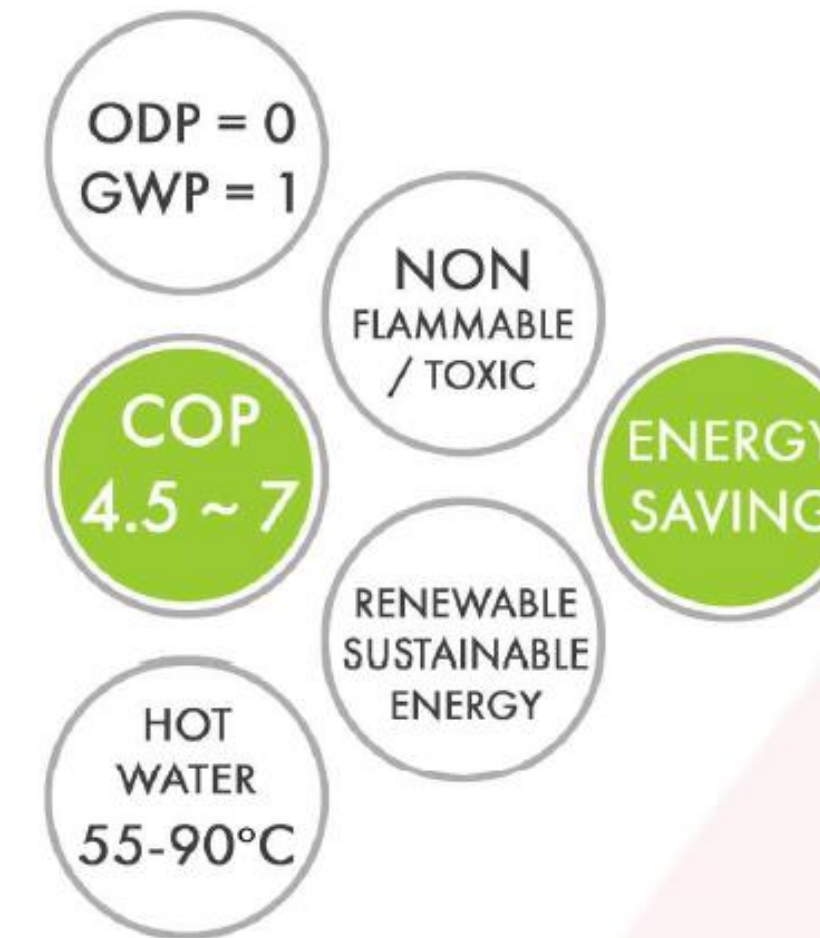
A simple solution to low cost and high efficiency in the production of hot water whilst still providing renewable space cooling for your space all year round.

Adoption of Natural Refrigerant

Heating Method	Electric Heater	ECOSTAR Heater	ECOSTAR Cooling
Energy Source	Electricity	Electricity	Cooling
Calorific Value	860 kcal/kwh	860 kcal/kwh	Working Hours : 6 Hrs
COP	1.0	3.9	2.8
Energy Unit Price	S\$ 0.15/kwh	S\$ 0.15/kwh	S\$ 0.15/kwh
Energy Consumption	34.88kwh	8.94 kwh	Generated Cooling : 1,074 kw/ 184.68 m3@ 12°C/7°C
Cost of heat 1 ton water from 30°C to 60°C per day	S\$ 5.23	S\$ 1.34	Energy Cost based on COP 4.0 refrigeration unit : S\$ 14,096.25
Cost of heat 43.2 tons water from 30°C to 60°C per day	S\$ 225.94	S\$ 57.96	
Cost of per Month	S\$ 6,778.2	S\$ 1,738.82	
Cost of per Year(350 Days)	S\$ 79,079	S\$ 20,286.23	
Cost Savings (Heat Only)	S\$ 58,792.77	74.34%	
Cost Savings (Heat & Cool)	S\$ 72,889.02	92.17 %	

According to calculations, the Company saved 74% in energy costs!

ECOSTAR CO₂ Solution Water-Source System



A simple solution to low cost and high efficiency in the production of hot water whilst still providing renewable space cooling for your space all year round.

Future Plans

- Mclean will be implementing more ECOSTAR machines throughout the Company's facilities, and the upcoming new facilities.
- The Company will be seeking for other new technologies to improve its energy efficiency



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**Thank you for
listening!**

