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CASE STUDY

Dominos Pizza Singapore
Project ID: A-012345

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DOMINOS PIZZA SINGAPORE

Case Study & Installation

Electric energy-saving device for Domino's Pizza Singapore

OBJECTIVE

To achieve electrical energy saving minimum -8%

METHOD

Smart Optimizer ECOD is an electric power saving device which

- Control the voltage and current in the optimum range
- Filtering harmonic and increase power factor
- Improve quality of electrical power supply in overall.

PROBLEM STATEMENT

Energy saving is a persistent strategy to enhance competitiveness and environmental conservation.

WORKING PRINCIPLE

Electronic controller regulates the direction of the current in coil of each transformer (one per phase) to regulate and balance the network parameter to sustain within it highest performance whilst minimize power loss in the network

TEST CONCLUSION

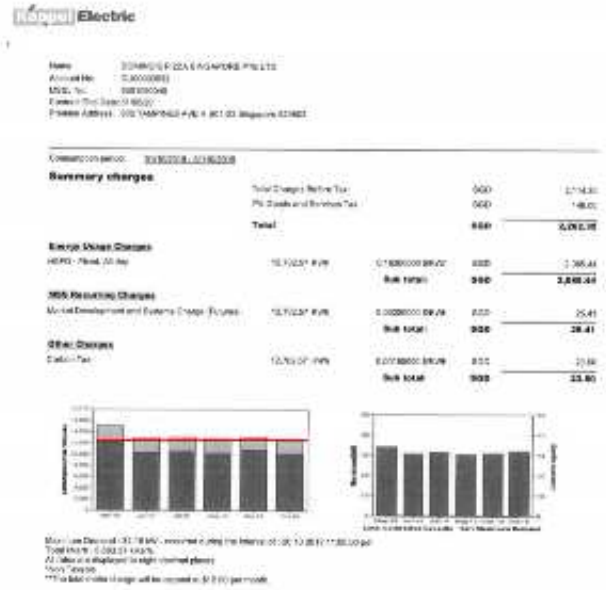
1. From 25 of April at store Domino's Pizza Killiney Road 71 Singapore have been installed device Smart-Optimizer ECOD for achieve reducing of electricity consumption
2. From 25 of May at store Domino's Pizza Tajong Katong Road Singapore have been installed device Smart-Optimizer ECOD for achieve reducing of electricity consumption
3. From 26 of May at store Domino's Pizza Tampines Ave 4 Singapore have been installed device Smart-Optimizer ECOD for achieve reducing of electricity consumption

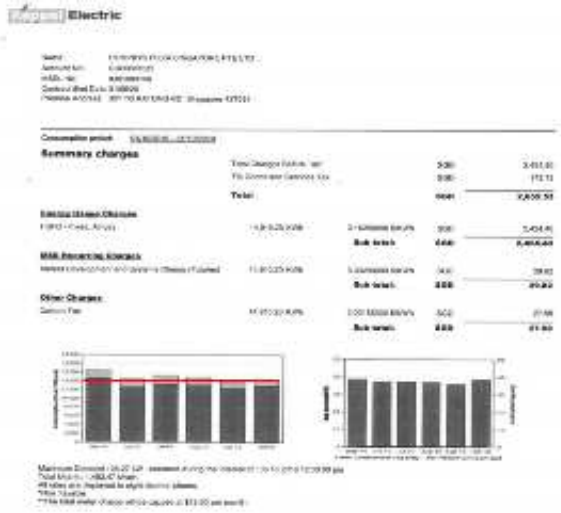
After comparison bills of months with using and without ECOD, we can determine differences (reducing) of electricity consumption on close to 10%. Also, we can determine a reducing KVAR(reactive power) and KW (Demand).

DOMINOS PIZZA SINGAPORE

Test Results

					Tampines							
	March	April	May	Average	June	July	August	September	October	Average	Difference	%
BILL	2636.77	2585.84	2763.57	2662.06	2361.49	2411.8	2362.26	2407.11	2262.35	2361.00		
Bill per day	85.06	86.19	89.15	86.80	78.72	77.80	76.20	80.24	72.98	77.19	-9.61	-11.07
KWH per day	477.40	483.96	500.54	487.30	441.60	436.83	427.86	450.52	409.76	433.31	-53.99	-11.08
KVAR	8972.63	8842.26	8830.25	8881.71	6891.98	7046.83	6922.53	7112.19	6863.37	6967.38	-1914.33	-21.55
KW-Max	33.44	31.96	34.16	33.19	30.88	31.62	30.34	31.04	32.18	31.21	-1.97	-5.95
					Tajong Katong Road							
	March	April	May	Average	June	July	August	September	October	Average	Difference	%
BILL	3111.38	2846.23	3030.43	2996.01	2661.74	2821.19	2746.20	2538.51	2655.53	2684.63		
Bill per day	100.37	94.87	97.76	97.67	88.72	91.01	88.59	84.62	85.66	87.72	-9.95	-10.18
KWH per day	563.54	532.70	548.88	548.37	498.17	510.98	497.39	475.10	480.97	492.52	-55.85	-10.18
KVAR	3412.05	3371.51	3623.67	3469.08	1621.45	1599.20	1354.98	1441.42	1492.47	1501.90	-1967.17	-56.71
KW-Max	38.24	37.93	38.78	38.32	37.52	37.26	36.82	35.80	38.27	37.13	-1.18	-3.09
					Killiney 71							
	February	March	April	Average	May	June	July	August	September	Average	Difference	%
BILL	2533.65	2980.55	2725.5	2746.57	2806.37	2399.72	2785.2	2906.53	2548.57	2689.28		
Bill per day	90.49	96.15	97.34	94.66	90.53	79.99	89.85	93.76	84.95	87.82	-6.84	-7.23
KWH per day	508.07	539.84	546.54	531.48	508.29	449.16	504.46	476.93	450.47	477.86	-53.62	-10.09
KVAR	10561.00	12041.00	11104.29	11235.43	8936.00	8160.09	9089.72	7684.92	7990.32	8372.21	-2863.22	-25.48
KW-Max	36.94	39.10	39.20	38.41	39.33	35.63	36.88	37.11	36.08	37.01	-1.41	-3.66

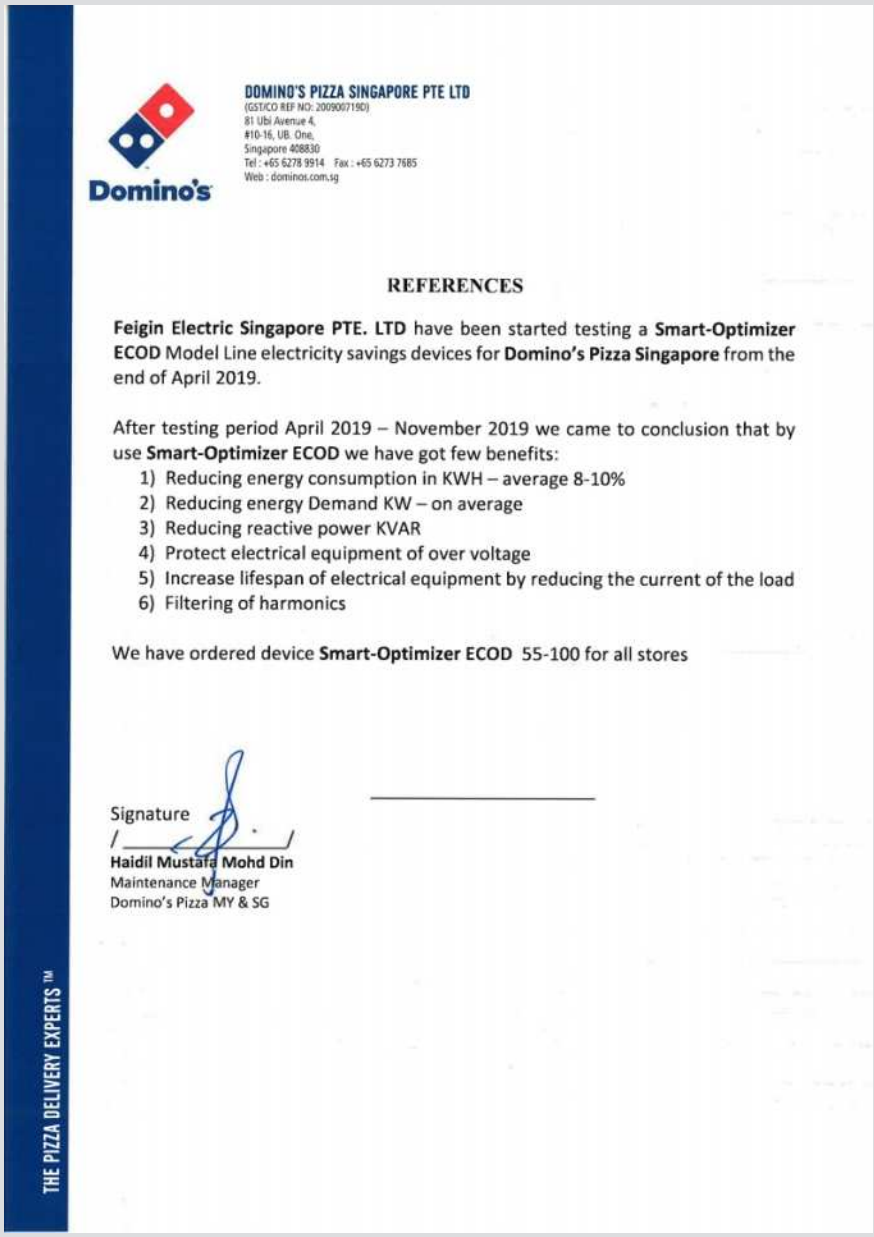




INVESTMENT ANALYSIS

Total consumption per month – average 14,000.00 kW/h

- Average bill per month - 2,800.00 SGD
- Required investment per store – 4,490.00 SGD
- Minimum saving 8% = 224.00 SGD (per month)
- Payback period of investment around 16 months because real energy saving effect is close 10%
- Warranty period of (120) months from the date of sale
- Price include audit, shipping and installation



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Domino's

THE PIZZA DELIVERY EXPERTS™

REFERENCES

Feigin Electric Singapore PTE. LTD have been started testing a **Smart-Optimizer ECOD** Model Line electricity savings devices for **Domino's Pizza Singapore** from the end of April 2019.

After testing period April 2019 – November 2019 we came to conclusion that by use **Smart-Optimizer ECOD** we have got few benefits:

1) Reducing energy consumption in KWH – average 8-10%
2) Reducing energy Demand KW – on average
3) Reducing reactive power KVAR
4) Protect electrical equipment of over voltage
5) Increase lifespan of electrical equipment by reducing the current of the load
6) Filtering of harmonics

We have ordered device **Smart-Optimizer ECOD** 55-100 for all stores

Signature

Haidil Mustafa Mohd Din
Maintenance Manager
Domino's Pizza MY & SG

EXPLANATION WHAT IS KWH, KVAR, KW DEMAND

1. KWH - A kilowatt hour (kWh) is a measure of how much energy you're using.
2. KW - Reflects the rate of electricity usage. Peak demand
3. KVAR – A Reactive power. Domino's Pizza don't pay for reactive power but higher KVAR caused higher losses and higher KVAR mean higher current of load as a results affected on lifespan of electrical equipment because heating are calculated according to the Joule –Lenz law* the power of heating generated by an electrical current I: W = R*I2, where the conductor resistance is R = (1/g) *(L/A). The electric current value could be calculated I = V / R

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Bedok North

West Cost

Bedok

Cho Chua Kang

Pasir Ris

Tai Thong

JOO KOON

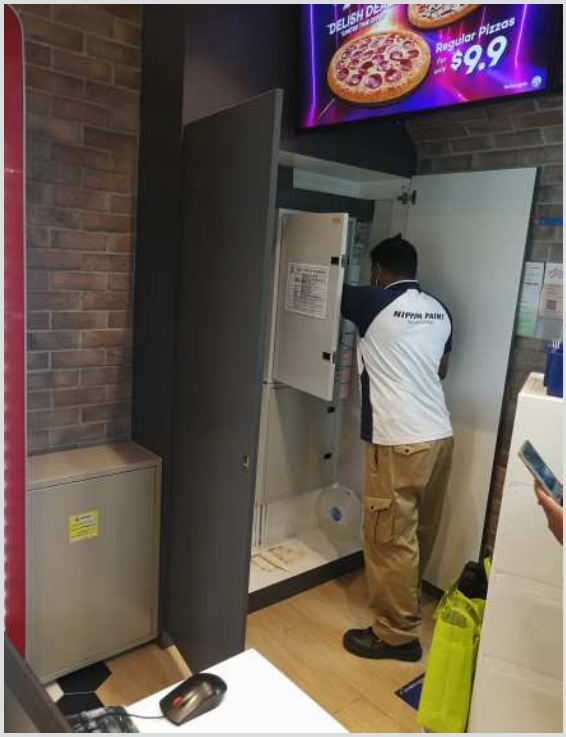
Jurong West

JURONG EAST

Stanley

Siglap

Bukit Merah



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WOODLANDS

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Toa Payoh