IMPLEMENTATION OF ENERGY MANAGEMENT IN RESIDENTIAL BUILDING

Presented by:
Budi Utomo

scientia residences

summerville PROPERTY MANAGEMENT

summarecon

OUR PROFILE

SCIENTIA RESIDENCE

Managed by summerville PROPERTY MANAGEMENT as subsidiary of PT. Summarecon Agung, Tbk. This company focused on managing high rise building such as apartments and offices.

The winner of The 4th National Energy Efficiency in 2015

Nomination: Energy Management in Industry, Small and Medium Building.

The winner of ASEAN Energy Award in 2015

Nomination: Energy Management in Industry, Small and Medium Building.

OUR PROFILE

SCIENTIA RESIDENCE

Location : Gading Serpong, Tangerang

Total Area : **17,200 m²**
4 towers (A, B, C & D)
11 floors

Saleable Area : **3,940 m²**
1087 units (Residential)
45 units (Non-Residential)

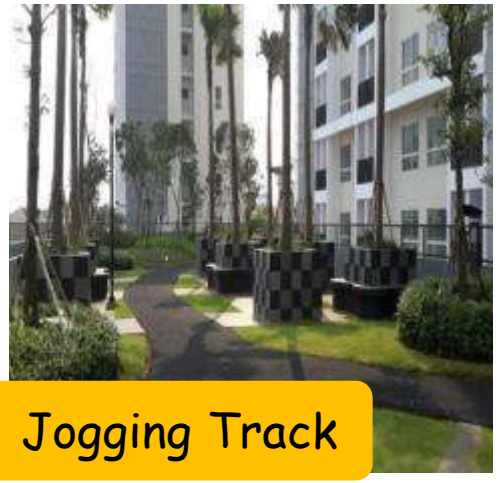
Parking Area : **19.241 m²**
4 floors
Connected within all towers

Public Area : **6,534 m²**
(Roof garden & Jogging Track)

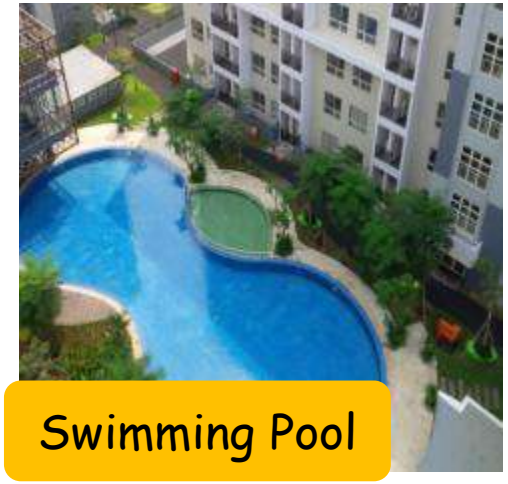
PUBLIC FACILITIE

GYM

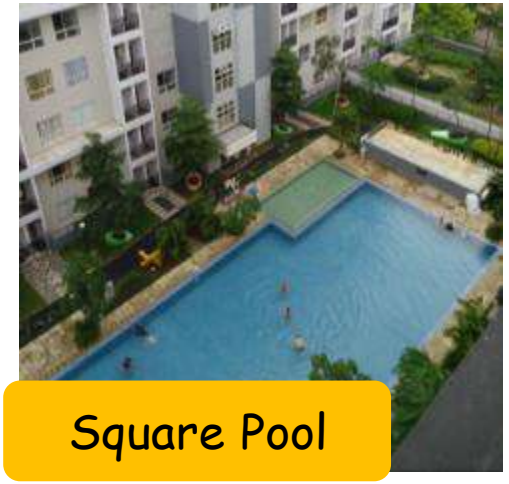
Kids Playground



Jogging Track



Swimming Pool

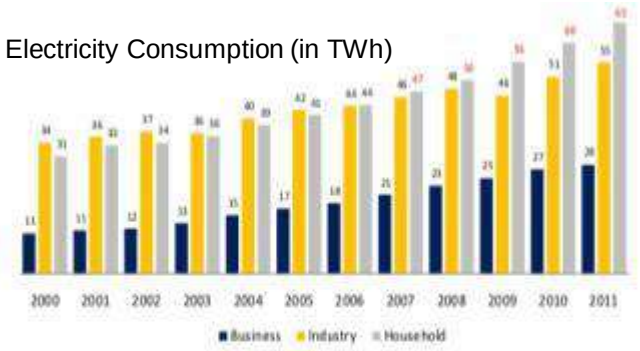


Square Pool

WHY DO WE CONCERN ABOUT ENERGY EFFICIENCY?

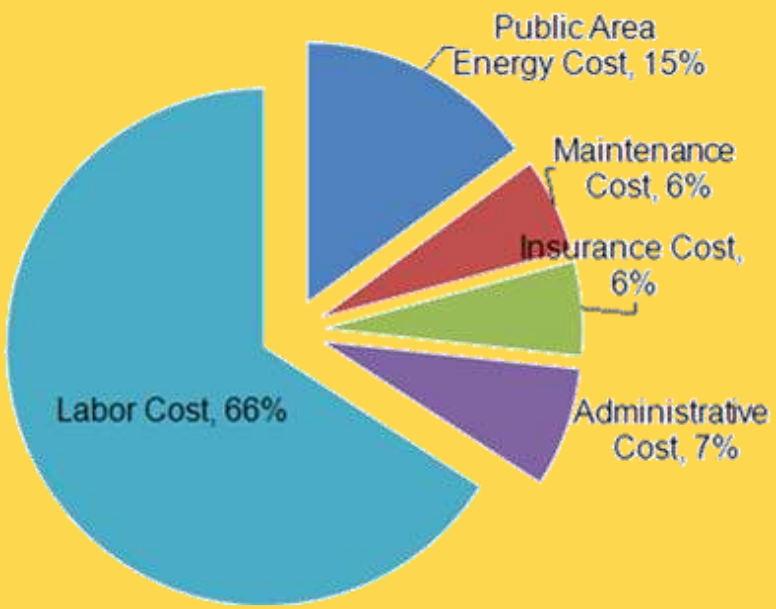
EXTERNAL FACTORS

Sumber : Seputar Indonesia 30-04-12



PLN divided its customer into 5 segments: (1) Business, (2) Industry, (3) Household, (4) Social, (5) Government

Source : EMR

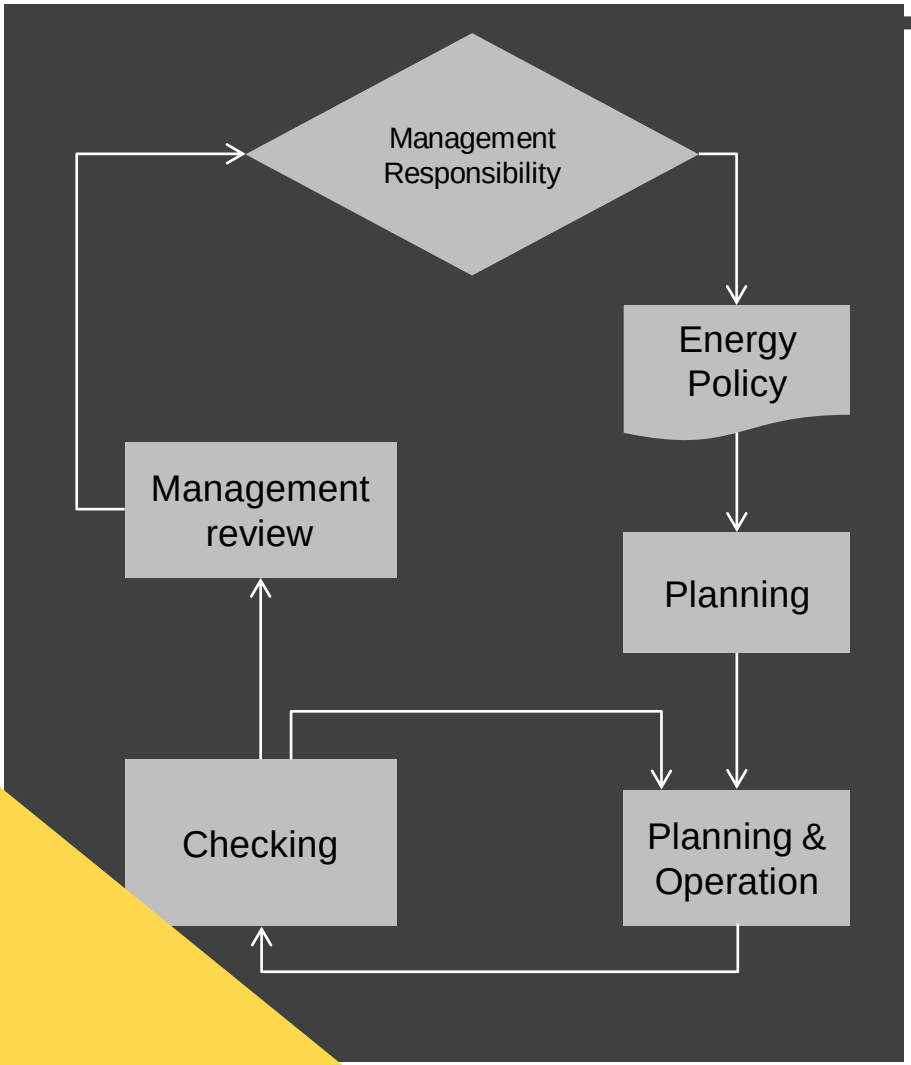


INTERNAL ISSUE

- Lower Operational Cost
- Lower Service Charge
- Reduce CO2 Emission
- Increase Customer Satisfaction Index
- Increase Investment
- Enhance Brand Image of PT. Summarecon Agung, Tbk and PT. Summerville Property Management as Building Management

HOW WE DID IT?

THE PRINCIPLE



We used ISO 50001 as our basic standard to implement energy management system with its notable principle:

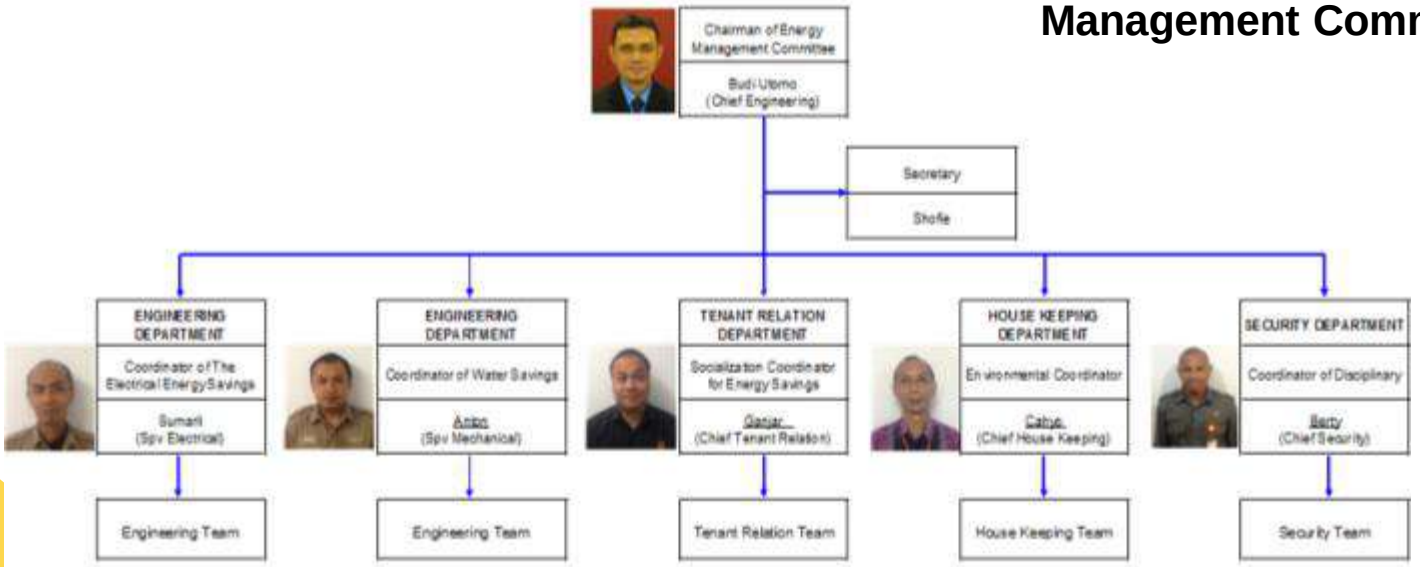
“PLAN – DO – CHECK – ACTION”

MANAGEMENT PARTICIPATION

1. **Management endorsement** through Directors Decree of Summarecon No: 048 / CHR-SA / IM / 2015
   Water and Electrical Efficiency

2. **Establishment of Investment Budget in Saving the Electrical Energy and Water.**

3. **Approval of Energy Management Committee**



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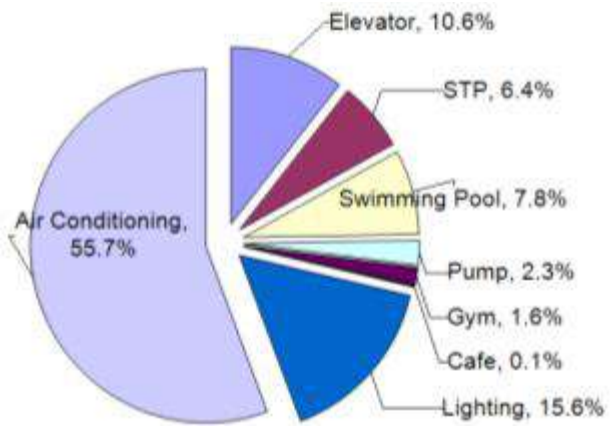
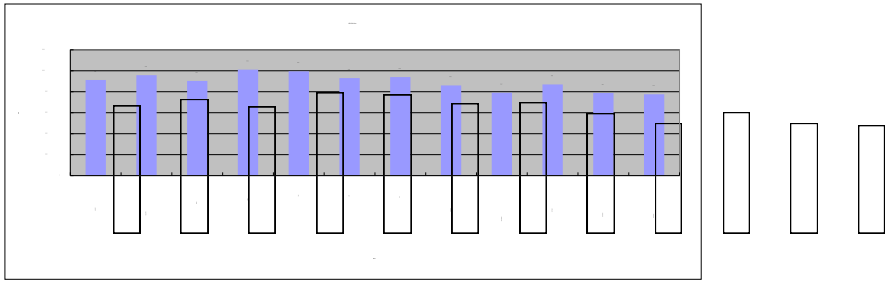
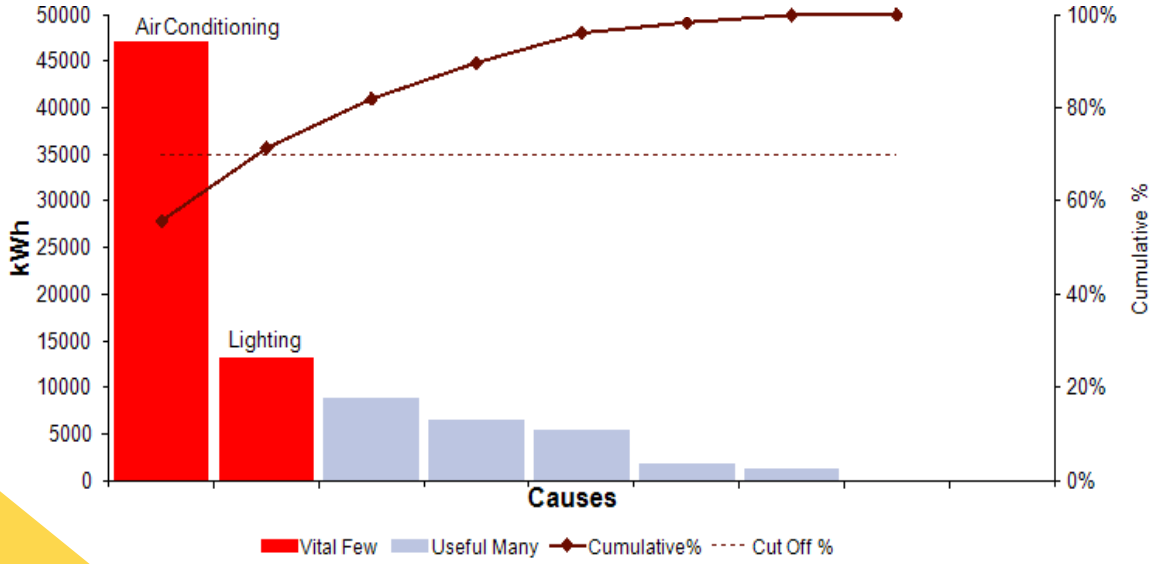
PLANNING
(ENERGI USE & BASELINE)



Baseline Energi Tahun 2014 1,073,090 kWh/Tahun



Significant Energy Use



2 ENERGY DRIVER

SeU	Energy Consumption (%)	Driver	Supporting Users	Monitoring
Air Conditioning	55.7	• On/Off (Operational) • Temperature Setting	Lobby Staffs,Back Office Staffs	kWh Consumption
Lights	15.6	• On/Off Operasional • Penerangan Parkir 24 Jam	Lobby Staffs,Back Office Staffs	kWh Consumption
Elevator	10.6	Activities hold in Basement - P3	Housekeeping, Engineering, Security	kWh Consumption
Water		• Swimming Pool Back Wash Water • Plant Gardening • Parking Lot Cleaning	Pool Attendant, Housekeeping	kWh Consumption

2

WHAT DID WE DO?

Non Investment

PROGRAM #1

Utilizing Passive Design as Natural Lighting

Low Cost Program

PROGRAM #2

Saving Energy Campaign

High Cost Program

PROGRAM #3

Purchasing Lamps Retrofit and Air Conditioner Refrigerant

PROGRAM #4

Automatic ON/OFF timer installation for lighting and AC replacement

PROGRAM #5

Sewage Treatment Plant water installation for gardening and cleaning

Target: Saving 10% from Baseline Energy 2014

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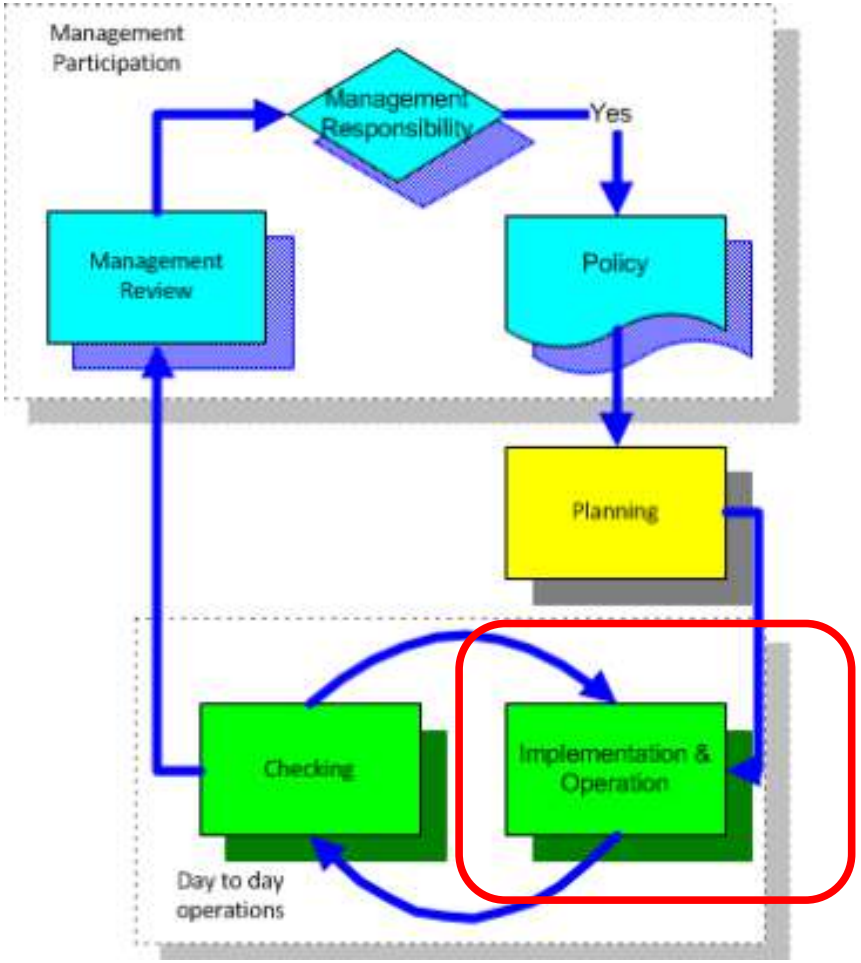
IMPLEMENTATION & OPERATION



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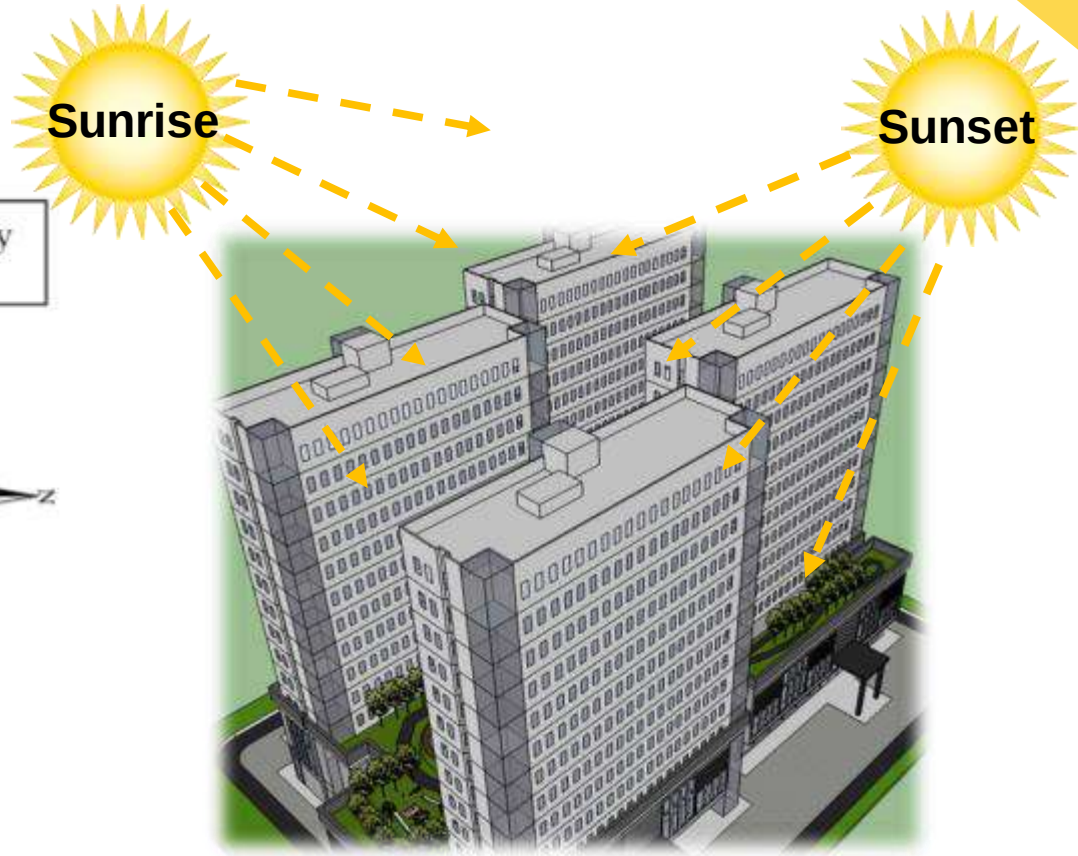
IMPLEMENTATION & OPERATION



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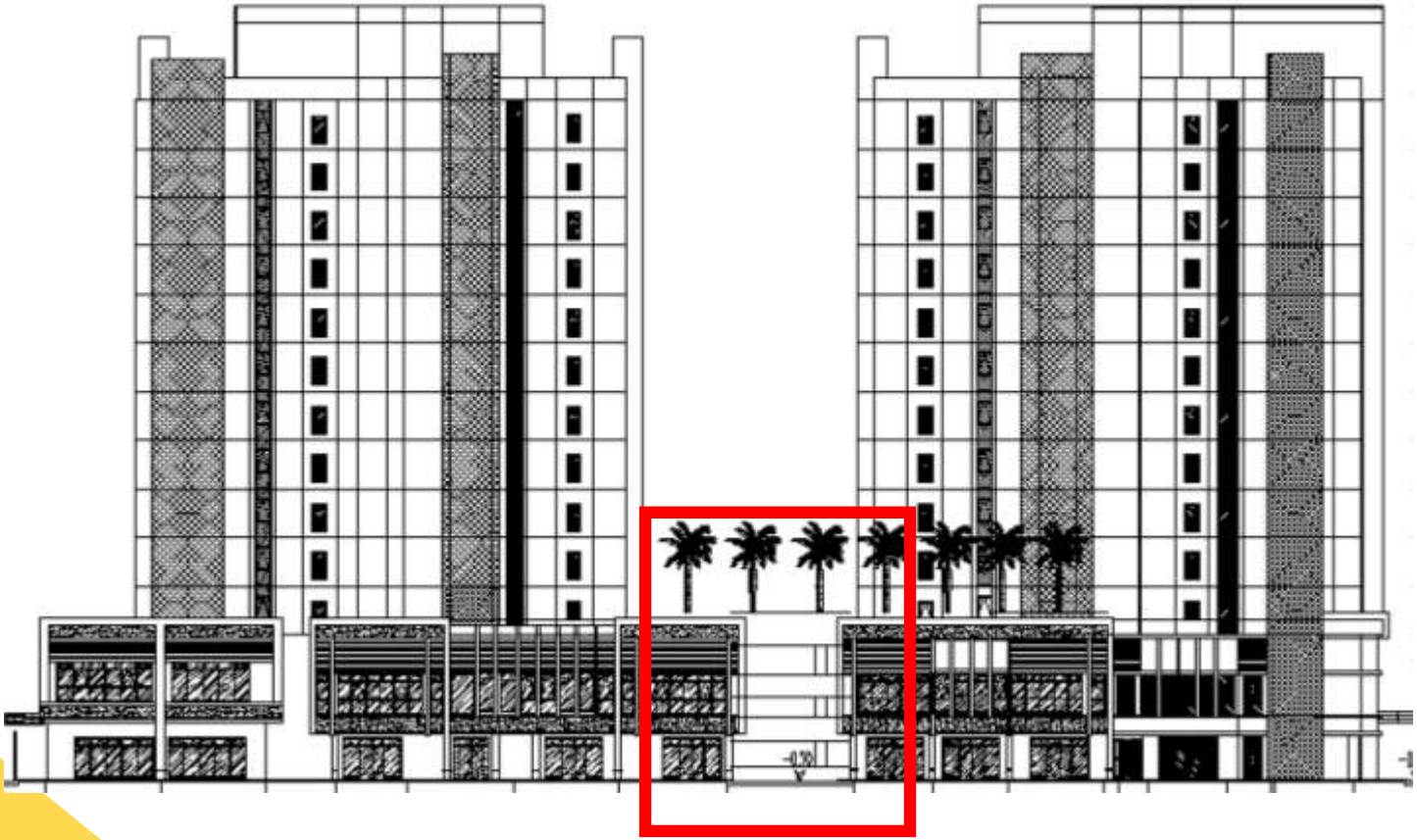
LIGHTING AND AIR CIRCULATION IN PARKING AREA



Parking area faces
west and east side

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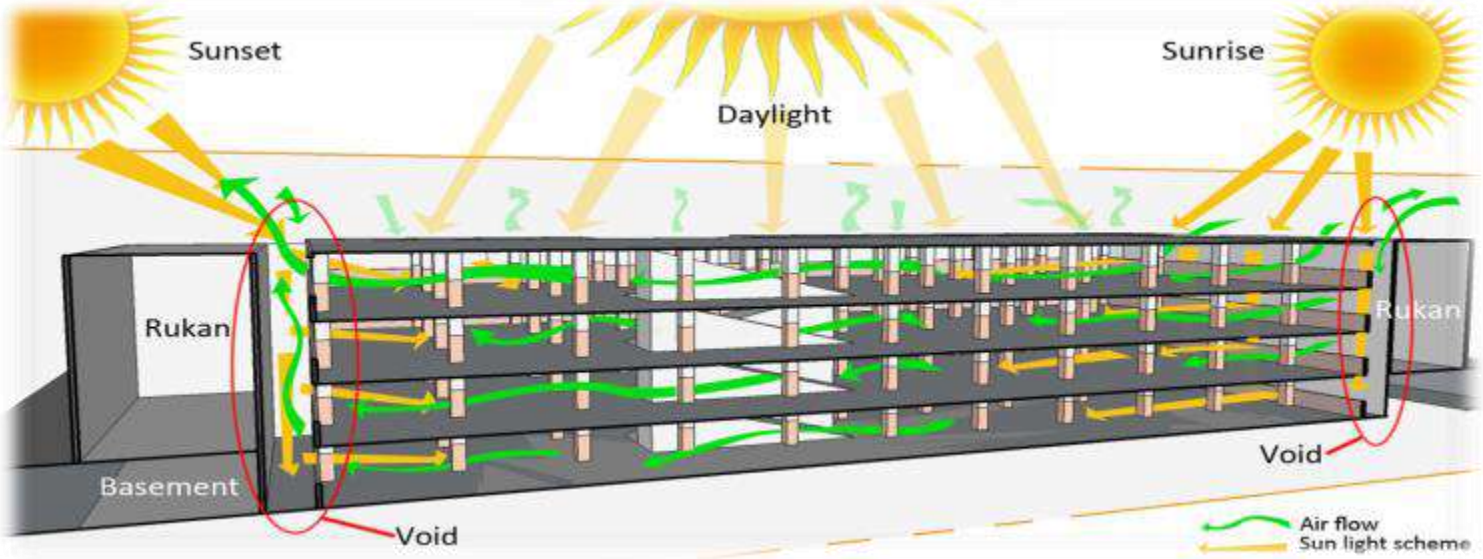
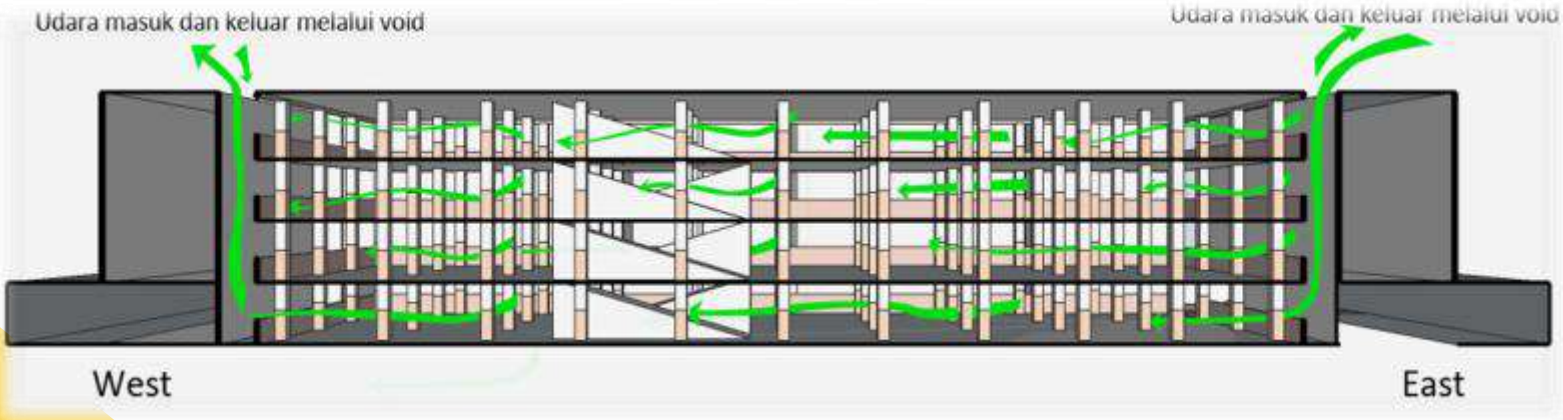
LIGHTING AND AIR CIRCULATION IN PARKING AREA





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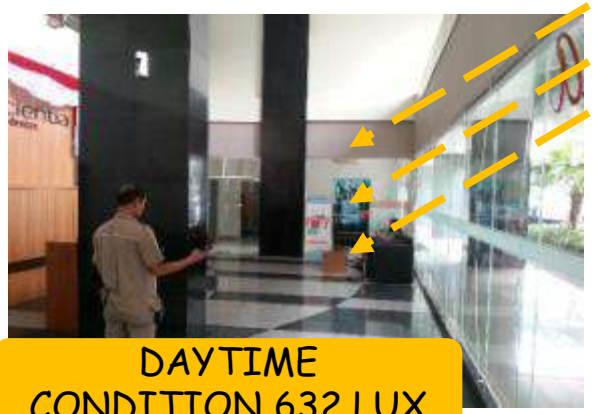
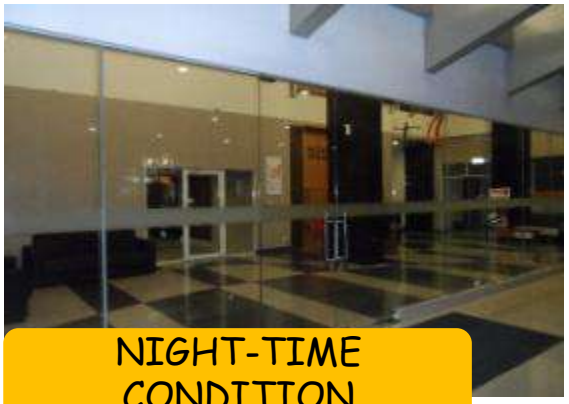
LIGHTING IN EMERGENCY STAIRS IN MAIN LOBBY AND GYM

Daylight in Main Lobby, On/Off Lamps Timer Schedule: 17:30 - 06:00 WIB



DAYTIME CONDITION 632 LUX

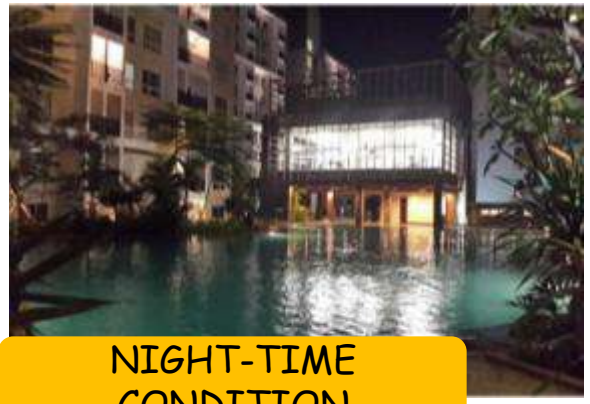


NIGHT-TIME CONDITION

Daylight at Gym, On/Off Lamps Timer Schedule: 17:30 - 06:00 WIB

DAYTIME CONDITION 687 LUX

GYM FACES EAST SIDE



NIGHT-TIME CONDITION

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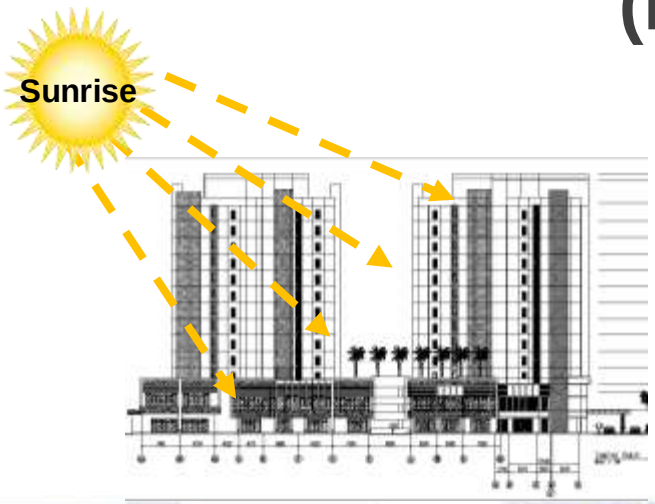
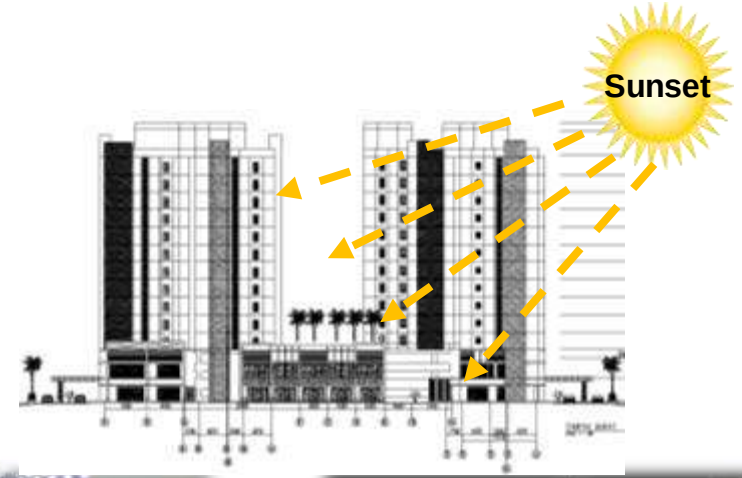
LIGHTING AND AIR CIRCULATION (PERFORATED MATERIAL)





DAYTIME: 1768 LUX

NIGHT -TIME

Daylight in Emergency Stairs using Perforated Materials with Lux Censor

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PROGRAM #1
SAVING PROGRAM

NO	Enegy Saving Programme	Investment USD ($)	Saving/Year			CO_2 *Reduction*	% Saving
			USD ($)	kWh	m^3	$KgCO_2/y$	
1	Program#1 (Non Investment)						
	- Main Lobby Tower A,B,C & D	-	1,883	23,271	-	4,072	6%
	- Gym	-	318	3,929	-	688	1%
	- Parking	-	4,326	53,454	-	9,354	15%
	- Emergency Staircase Twr A,B,C &D	-	1,429	17,660	-	3,091	5%
	Sub Total Program#1	-	7,956	98,314		17,205	27%

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PROGRAM #2
ENERGY MANAGEMENT CAMPAIGN

SUBJECT

Program #2 Energy Management Campaign

TARGET

All employees and tenants actively support the Energy Saving program.

ACHIEVEMENT

All employees and tenants are concerned about energy saving through turning off the lamps and AC while not in their room.

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PROGRAM #2
ENERGY MANAGEMENT CAMPAIGN

Building Management Participation in Energy Saving Campaign




Energy Saving Training





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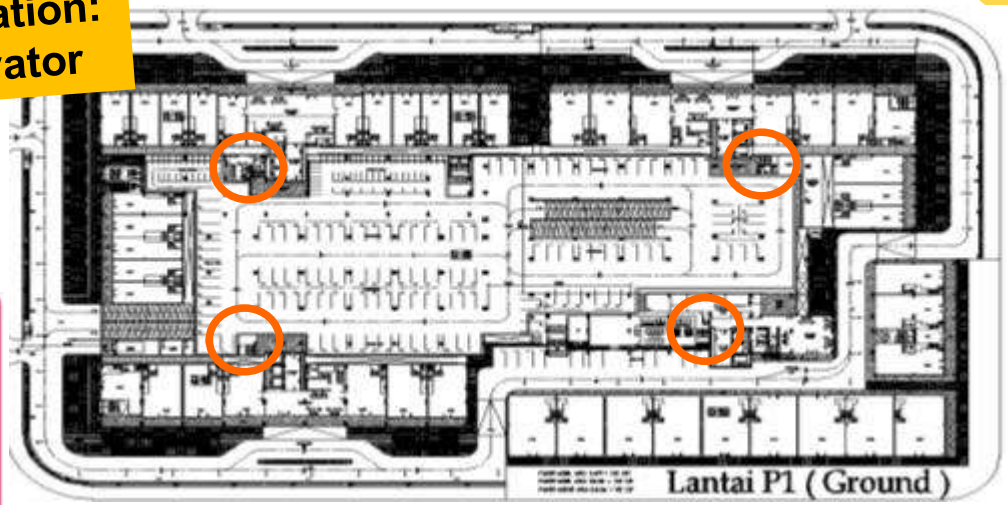
PROGRAM #2
ENERGY MANAGEMENT CAMPAIGN

Energy Saving Campaign Implementation:
Using Parking Stairs Instead of Elevator



Legend :

Location of Parking Stairs Typical Basement-P3

3

PROGRAM #3, #4, #5

LAMPS RETROFIT & AC REFRIGERANT, RECYCLE WATER INSTALLATION

NO	Enegy Saving Programme	Investment USD ($)	Saving/Year			CO_2 *Reduction*	Payback Period (Year)
			USD ($)	kWh	m^3	$KgCO_2/y$	
3	Program#3 (Investment)	2,631	8,700	95,403	-	16,696	0.3
	Using Control Timer for On Off Lighting in The :						
	- Tower Corridor Tower A,B,C & D		6,878	79,786	-	13,963	
	- Change Over AC Split Duct to AC Split at main lobby		1,823	15,617	-	2,733	
4	Program#4 (Investment)	3,269	7,844	69,747	-	12,206	0.42
	Replacement of 1,087 Pcs Incandescent Lamp 25W to LED 3W		5,298	48,007	-	8,401	
	Replacement of 30 Pcs Mercury Vapor Lamp (HQL) 125W to CFL High Output 28W		1,203	12,746	-	2,231	
	Replacement of 11 Pcs CFL 23W to LED Bulb 12.5 W		48	506	-	89	
	Replacement of 12 Pcs Halopar 75W to LED Bulb 12.5 W		310	3,285	-	575	
	Retrofit Refrigerant Hydrocarbon		985	5,203	-	911	
5	Program#5 (Investment)	8,808	5,210	3,587	6,888	628	1.69
	Water Recycle for gardening						
	Sub Total Program#3+4+5	14,708	21,754	168,737	6,888	29,529	
	Total Program#1+2+3+4+5	14,708	29,710	267,051	6,888	46,734	0.5

3

LIGHTING RETROFIT

No	Location	Total Lamps	Conventional		Energy Efficient-Light (High Output)		LED Lamp	
			Pcs	%	Pcs	%	Pcs	%
1	Balcony Lamp(Bulb 25 Watt to LED 3 Watt)	1087	-	-	-	-	1087	100 %
2	PJU Lamp (HQL 125 Watt ke CFL HO 28 Watt)	30	-	-	30	100%		
3	Garden Lamp - (CFL 23 Watt to LED 12.5 Watt) - Halopar 75 Watt to LED 12.5 Watt)	93	70	75%	-	-	23	25%
4	Parking Lamp	579	579	100%	-	-	-	-
5	Corridor Lamp	1180	1180	100%	-	-	-	-
6	Emergency Lamp	240	240	100%	-	-	-	-
	Total	**3209**	**2069**	**64%**	**30**	**1%**	**1110**	**35%**

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AC REFRIGERANT RETROFIT



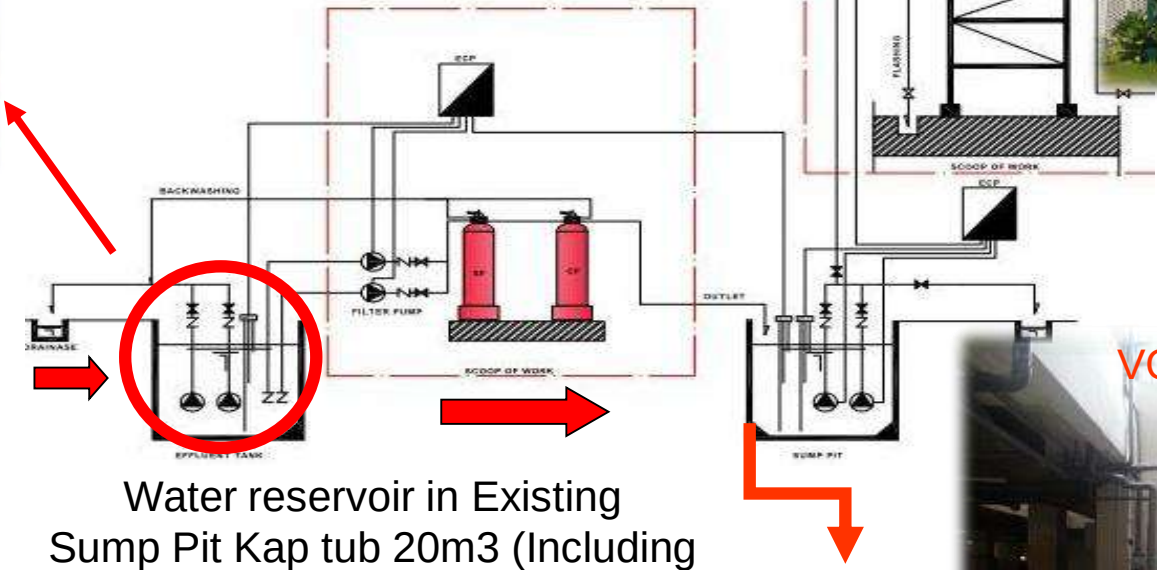

Location	Total AC Unit	R22		MC22	
		Unit	%	Unit	%
Split Duck AC	6	6	100%	-	-
Split AC	37	31	70%	6	30%
Total	43	37	86%	6	14%
					10.5PK

3

INSTALLATION SYSTEM OF STP'S RECYCLED WATER

Location : STP
Sand Room & Carbon
Filter Kap 15m3/day

Lokasi : Roof Garden
Lantai 5
Roof Tank Kap 2x2.5m3



18.87 m3/day or 6,888 m3/year

SAVE

Water reservoir in Existing
Sump Pit Kap tub 20m3 (Including
Existing Transfer Pump)

Wudhu Recycle Water at Mushola + Water flow from rain stream down inside Recycled SumPit Tub

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RECYCLED WATER USE

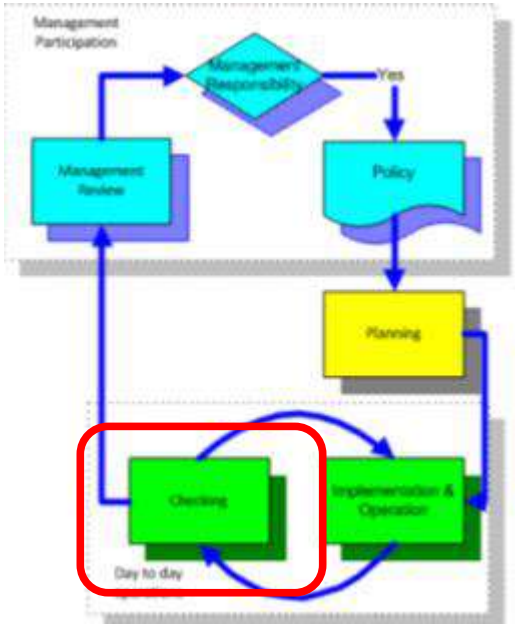






4

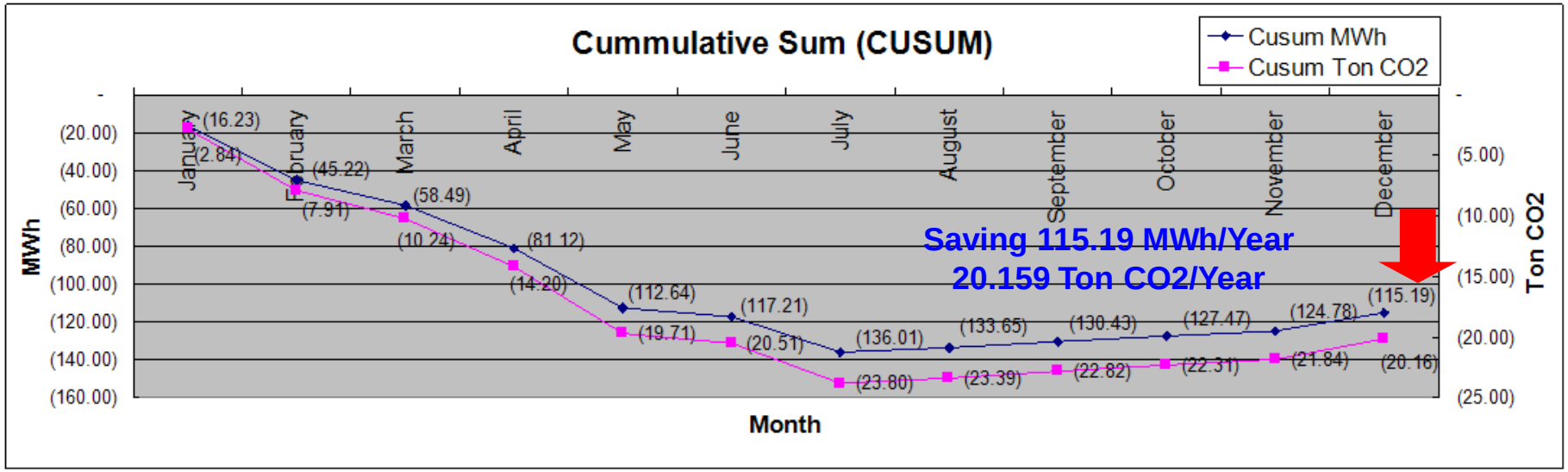
CHECKING

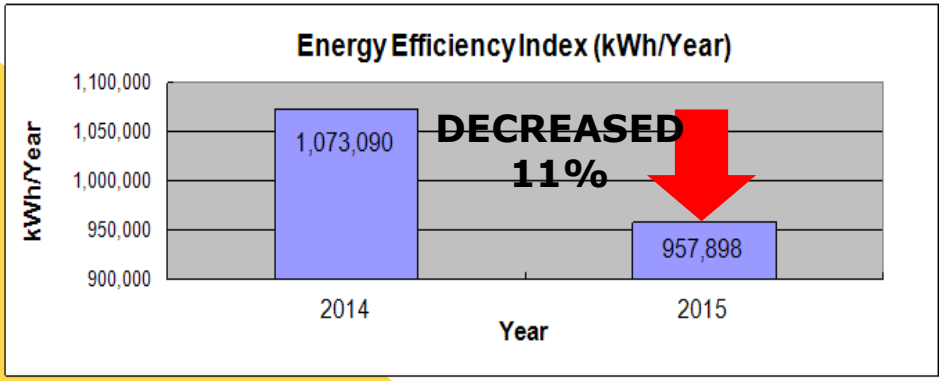


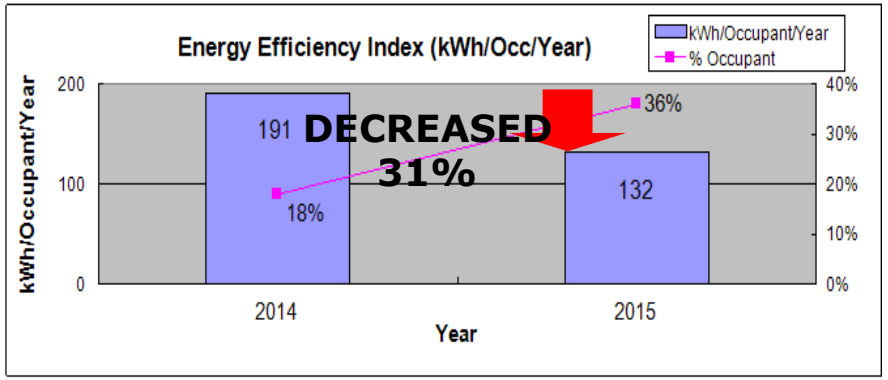
ENERGY MANAGEMENT COMMITTEE MEETING SESSION

4

ENERGY MANAGEMENT
PERFORMANCE ACHIEVEMENT







THANK YOU