

2017 FOOTBALL FACILITIES FORUM

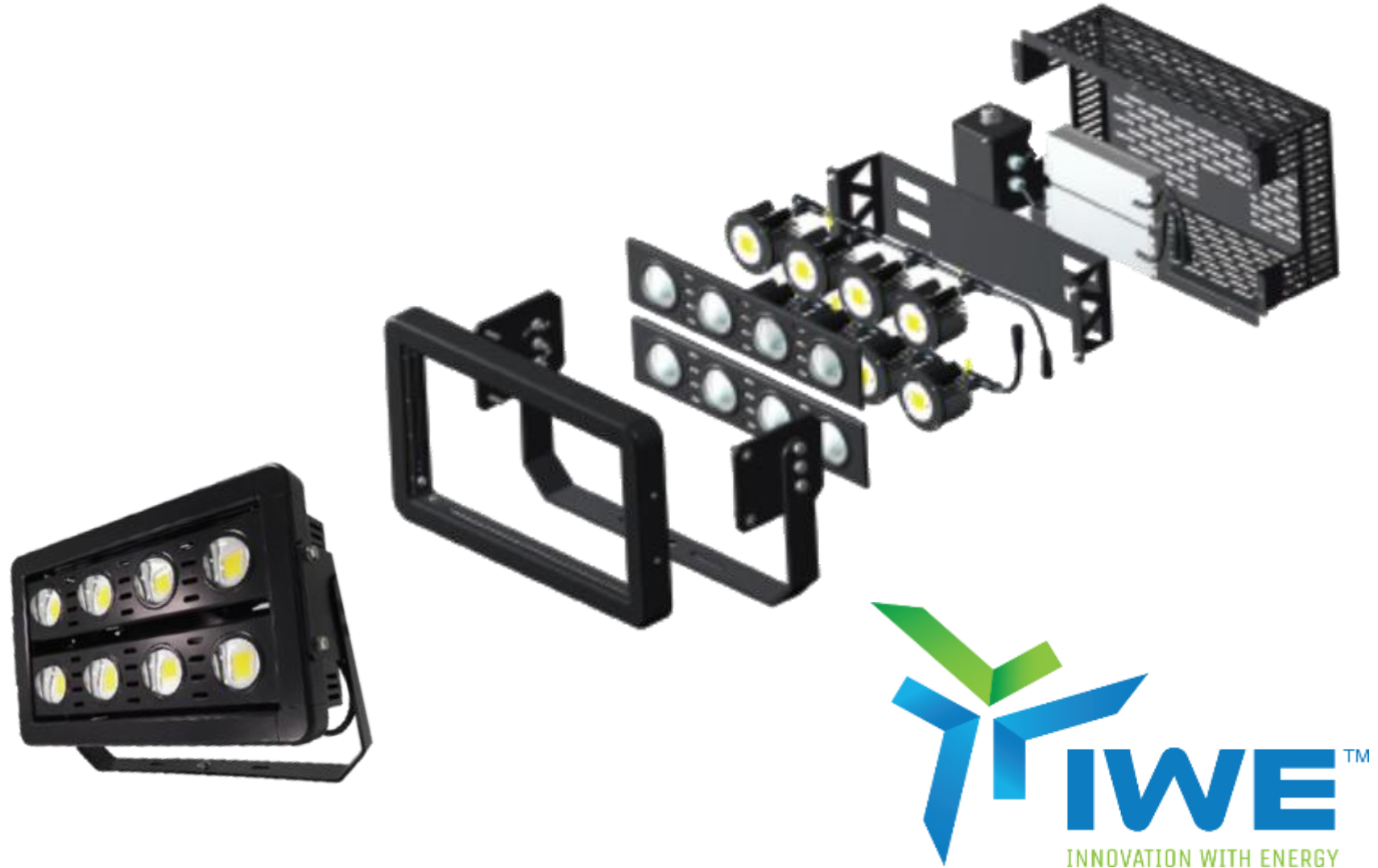


McDonalds Jones Stadium – 2nd December 2017

LED Lighting Technology

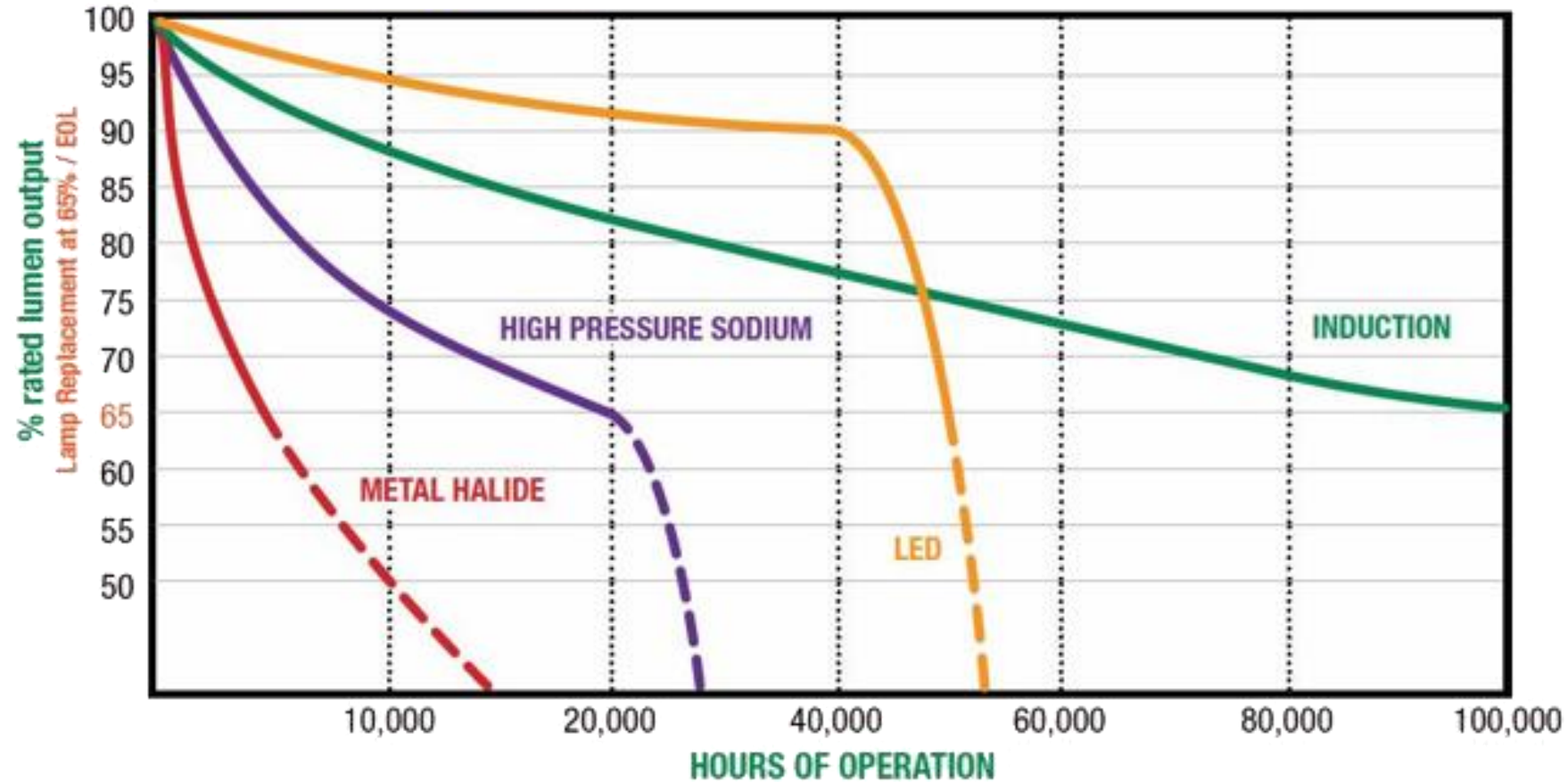
- **Advantages**

- **Long Life**
- **Energy Efficiency**
- **Low Maintenance**
- **Instant On**
- **Controllability**
- **Durability**



LED vs MH Lights Performance

ESTIMATED LUMEN MAINTENANCE



LED vs MH


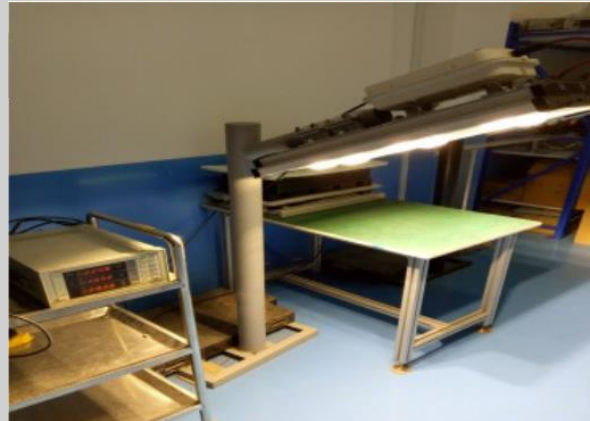
Hrs Run vs % Original Output	2000hrs	4000hrs	5000hrs	6000hrs	8000hrs	10000hrs	Rated Life
IWE 1000W LED	97.00%	96.20%	95.80%	95.40%	94.60%	93.82%	50,000hrs
1000W Metal Halide	71.00%	58.00%	-	47.00%	35.00%	-	9000hrs
2000W Metal Halide	77.00%	75.00%	67.00%	-	-	60.00%	12,000hrs

LED Life Test

IWE Life Test since 2012

- 24hrs a day, 7 days a week
- Total light on time.
- 1440 Days
- 34,560 hours

Over that time the test has shown a degradation of 20% in luminous flux

Product Name: Street Light	Product Number: IWE-SL6B-300	Lamp Power: 300W	Lamp: 5003 6 x 50W	Power Supply: Meanwell						
Application Date 2012.7.13										
Aging Type: <input checked="" type="checkbox"/> Nomal Temerature 25°C		<input type="checkbox"/> High Temperature 85°C								
Actual Aging:										
										
Normal Tempeature		Aging Test Light								
Luminous Flux										
Day/D	0	4	41	83	360	540	720	900	1080	1440
Hours	0	96	984	1992	8640	12960	17280	21600	25920	34560
Luminous Flus/LM	33000	32550	32110	32010	31132	30583	29668	29147	28834	26287
Luminous Flux Change %	100.00%	98.64%	97.30%	97.00%	94.34%	92.68%	89.90%	88.32%	87.38%	76.66%

LED Life Test

Lights on -

4 hours a day | 7 days a week | 52 weeks a year

4hrs/day	1 year	5 years	10 years	15 years	20 years	25 years
Hours	1460 hrs	7300 hrs	14600 hrs	21900 hrs	29200 hrs	36500 hrs
Total days	60.83 days	304.17 days	608.33 days	912.50 days	1216.67 days	1520.83 days
% of original output	97.16%	94.88%	91.62%	88.26%	85.55%	78.89%

LED vs MH Lights Operating Cost

Single Field 100 Lux - Lights – IWE LED 16 x 1000w

ENERGY COSTS

kWh Calculator	LED	MH
Power	1000w	2000w
Quantity	16 lights	16 lights
Hours per day	2.5 hrs	2.5hrs
Days per week	3 days	3 days
Electricity cost/kW	\$0.32	\$0.32

LED V MH COST SAVINGS

kWh	40 kWh	80 kWh
Cost per day	\$12.80	\$25.60
Cost per week	\$38.40	\$76.80
Cost per year	\$1,997	\$3,994

Savings per 1 year = \$1,997

Savings per 10 years = \$21,366

MAINTENANCE COSTS SAVINGS

Average Maintenance Cost PA for MH = \$3,500

Savings with LED

	Year 3	\$10,500
	Year 10	\$80,850
Total Savings - Maintenance + Energy		
	Year 1	\$1,997
	Year 5	\$21,183
	Year 10	\$102,216

EMISSIONS SAVINGS

Reduced Co2 in Metric tonnes

	Year 1	80
	Year 10	800

LED vs MH Lights Operating Cost

Single Field 200 Lux - Lights – IWE LED 16 x 1000w

ENERGY COSTS

kWh Calculator	LED	MH
Power	1000w	2000w
Quantity	32 lights	32 lights
Hours per day	2.5 hrs	2.5hrs
Days per week	3 days	3 days
Electricity cost/kW	\$0.32	\$0.32

LED V MH COST SAVINGS

kWh	80 kWh	160 kWh
Cost per day	\$25.60	\$51.20
Cost per week	\$76.80	\$153.60
Cost per year	\$3,994	\$7,987

Savings per 1 year = \$3,994

Savings per 10 years = \$42,732

MAINTENANCE COSTS SAVINGS

Average Maintenance Cost PA for MH = \$4,500

Savings with LED

	Year 3	\$13,500
	Year 10	\$103,950
Total Savings - Maintenance + Energy		
	Year 1	\$3,994
	Year 5	\$34,866
	Year 10	\$146,682

EMISSIONS SAVINGS

Reduced Co2 in Metric tonnes

	Year 1	160
	Year 10	1,599

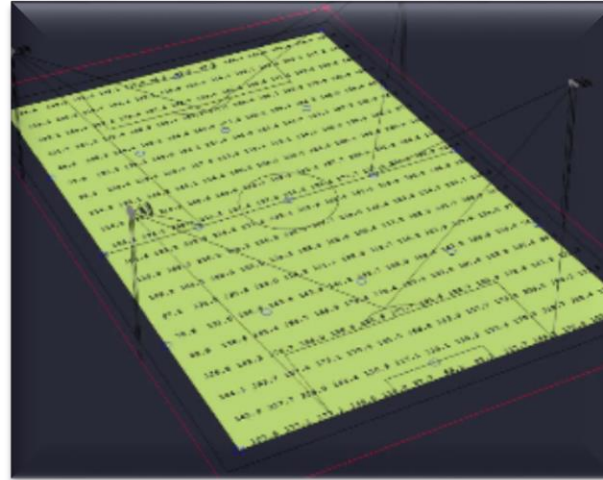
Lighting Requirements - Football

LIGHTING CRITERIA

Level of play	Maintained average horizontal illuminance ^{a),b)} (E_{mh}) lux	Minimum horizontal uniformities ^{c)}		Maximum glare rating (GR_{max})	Minimum colour rendering index ($R_{a\ min}$)	Maximum uniformity gradient
		(U_1)	(U_2)			
Recreational level						
Touch and tag	50	0.3	N/A	N/A	65	N/A
Amateur level						
Ball and physical training ^{e)}	50	0.3	N/A	N/A	65	N/A
Club competition and match practice	100	0.5	0.3	50	65	N/A
Semi-professional level						
Ball and physical training ^{e)}	50	0.3	N/A	N/A	65	N/A
Match practice	100	0.5	0.3	50	65	N/A
Semi-professional competition	200	0.6	0.4	50	65 ^{d)}	N/A
Professional level						
Ball and physical training ^{e)}	100	0.5	0.3	50	65	N/A
Match practice	200	0.6	0.4	50	65	N/A
Professional competition	500	0.7	0.5	50	65 ^{d)}	20% per 5 m

Installation Process

1. Lighting Design
2. Site Inspection, GEO Tech Report
3. Trenching
4. Footings
5. Pole Installation
6. Light Installation
7. Light Aiming
8. Testing/Commissioning



Installation Costs

Single Field 100 Lux

4 x 20m Poles

16 x 1000w Lights

1 x Smart Control

**Total Supply & Install
Cost**

= \$89,500 ex gst

Single Field 200 Lux

4 x 20m Poles

32 x 1000w Lights

1 x Smart Control

**Total Supply & Install
Cost**

= \$142,000 ex gst

LED Lighting ROI

100 Lux	Total Saving	ROI
Year 1	\$5,497	6%
Year 3	\$21,183	24%
Year 10	\$102,216	114%
Break Even 8.76 yrs		

200 Lux	Total Saving	ROI
Year 1	\$8,494	6%
Year 3	\$34,866	25%
Year 10	\$146,682	103%
Break Even 9.68 yrs		

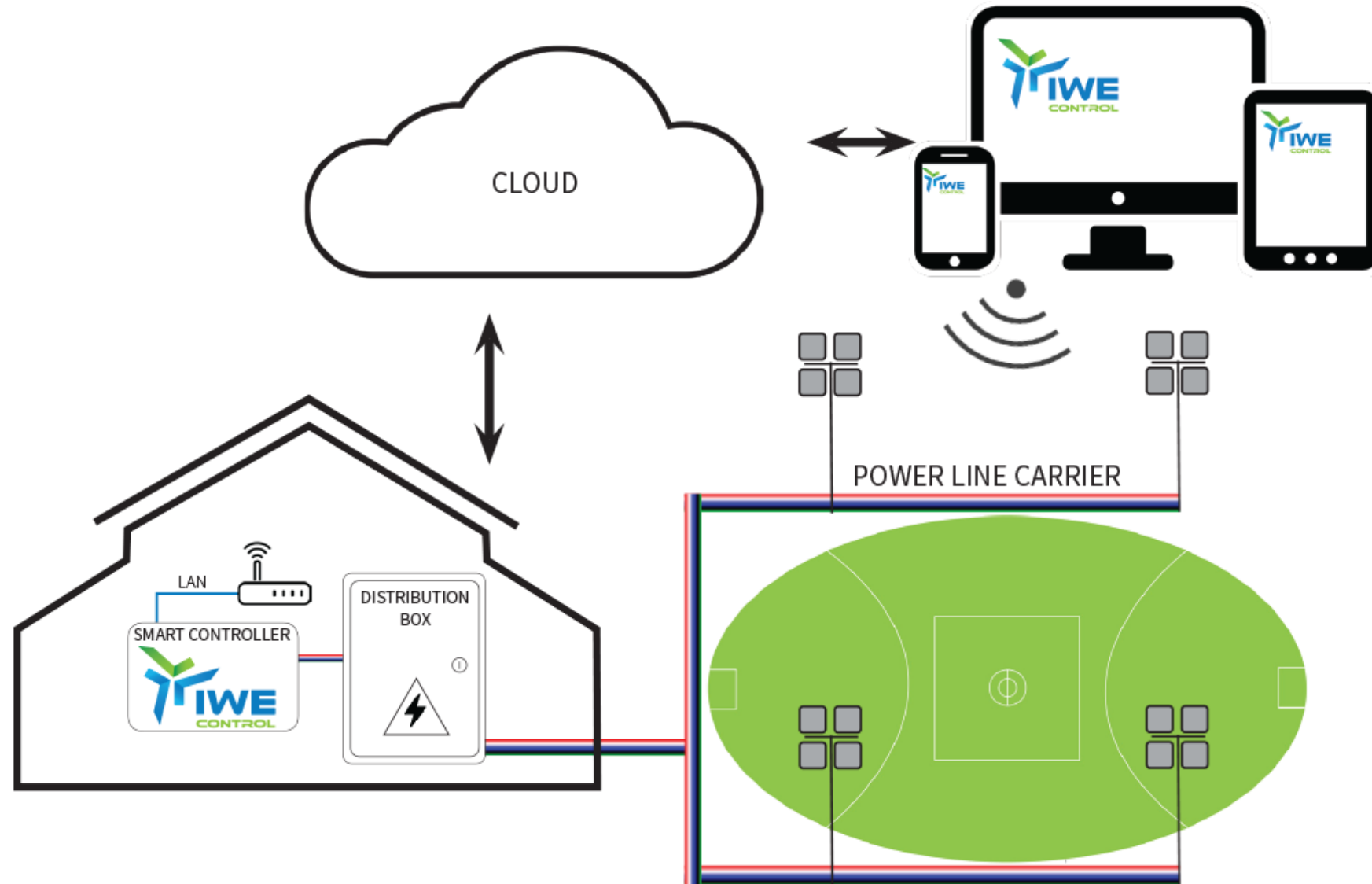
LED Smart Control

Key Benefits:

- ✓ Remote On/Off
- ✓ Timer Light Control
- ✓ Wi-Fi / LAN compatible
- ✓ 0-100% Dimming Feature
- ✓ Real Time Reporting
- ✓ Smart Control Box
- ✓ LAN/Wi-Fi/3G
- ✓ Can control up to 250 lights
- ✓ System can be integrated with existing lights



LED Smart Control



Smart Control Demonstration



Lank Bain Park - Wauchope – 50 Lux Training



Oxley Oval – Port Macquarie – 100 Lux



Hilltop Soccer Club – 100 Lux



Soccer Stadium – 1000 lux



Questions



**Thank you for your time.
We look forward to supporting
Football in NSW.**