

دائرة الشؤون البلدية والنقل
DEPARTMENT OF MUNICIPAL
AFFAIRS AND TRANSPORT
بلدية مدينة أبوظبي
ABU DHABI CITY MUNICIPALITY



مشروع نور أبوظبي

Noor Abu Dhabi Project

Industry Outreach Workshop

10 September 2017





مشروع نور أبوظبي

Noor Abu Dhabi Project

المرحلة الأولى

تأهيل إنارة (أل.إي.دي) الذكي لشوارع جزيرة أبو ظبي بالشراكة مع القطاع الخاص

Phase I

Smart LED Lighting Retrofit for AD Island Streets in Partnership with the Private Sector (PPP Procurement Approach)

Workshop Agenda



Date	10th September 2017
Venue	Rosewood Hotel –Al Maryah Island
8-30 – 9:00	Registration & Breakfast
9:00- 9:05	Welcome & Opening the Workshop Dr. Rasin Mufti VP - Abu Dhabi Sector Manager - Parsons
9:05 – 9:15	ADM PPP Initiative Brief Eng. Majed AlKatheeri Executive Director - Municipal Infrastructure and Assets Sector – ADM
9:15 – 9:45	Project Background Eng. Husain Alsaeedi Head of PPP Advisory Committee - ADM Project Requirements Dr. Jamal El Zarif Technical Advisor – ADM
9:45 – 10:00	Short Coffee Break
10:00 – 10:20	Project Technical Requirements Mr. Hosam Heikal/ Dr. Essam Elderwi Parsons/ DCIL Mr. Martin Valentine Lighting Expert -ADM
10:20 – 10:40	QCC Certification Requirements Dr. Simon Miller Product Conformity Specialist – QCC
10:40 – 11:00	Project Contractual & Legal Requirements Mr. Gamal Abouali Partner - Cleary Gottlieb Steen & Hamilton
11:00 – 11:45	Financing Requirements, Payment Mechanism and Bid Evaluation Mrs. Ruth McMorrow Executive Vice President – Parsons Corporation Mr. Michael Palmieri President & Founder of p3point
11:45 -01:15	Question & Answers
01:15 - 02:15	Lunch Break
End of Workshop	

Workshop Agenda Afternoon Sessions

Pre-registered Special One-on-One Meetings



Meetings Slots Have been already communicated



WORD OF EXECUTIVE DIRECTOR

Engr. Majed Alkatheeri

ED of Municipal Infrastructures and Assets Sector



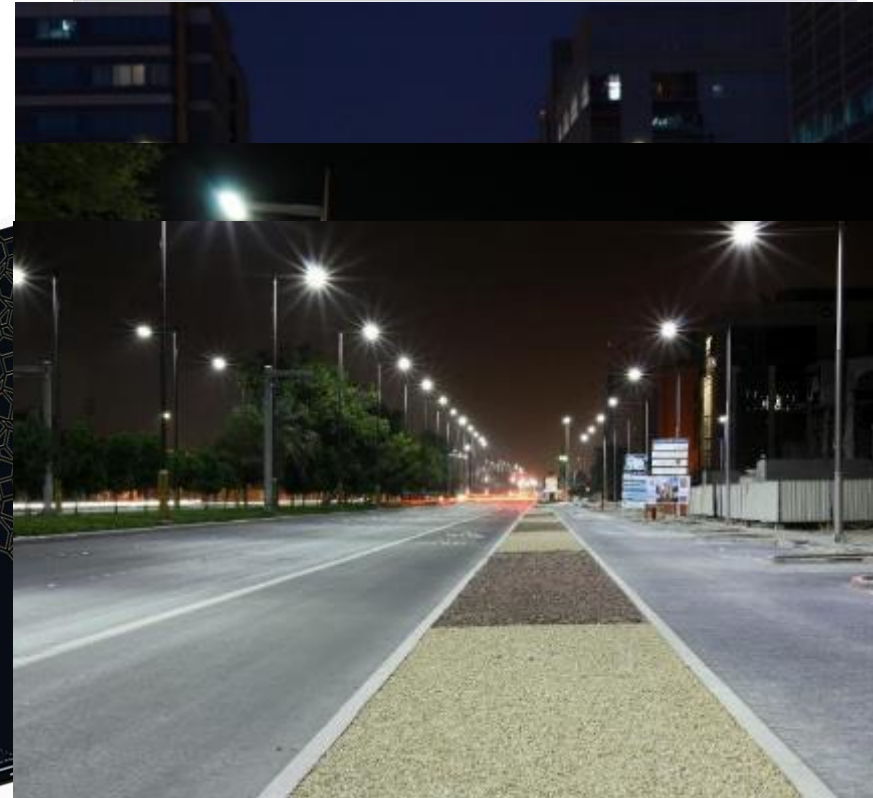
PROJECT BACKGROUND

Engr. Husain Al Saeedi

Head of Studies and Standards Team

The Executive Council Decree

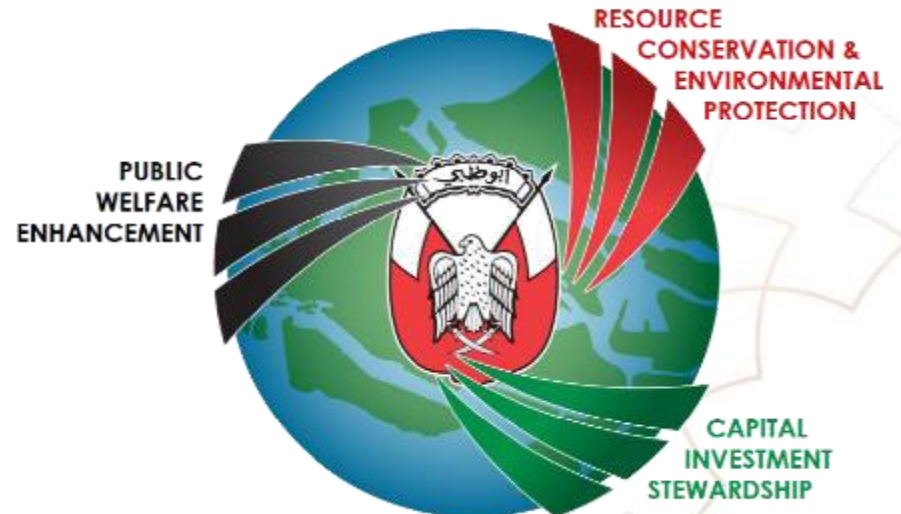
1. The proposed Public Lighting Strategy was approved in 2011
2. Issue necessary regulations including standard specifications
3. Start implementation immediately in all new projects
4. **Prepare implementation program to retrofit existing lighting**



Abu Dhabi Sustainable Public Lighting Strategy

The Strategy Addresses:

- The design standards
- Power-saving lighting technologies
- More efficient operations strategies
- Environmental assessment
- Economic Feasibility analysis up to 2030 horizon Year
- Human and Social aspects



Abu Dhabi Sustainable Public Lighting Strategy



The strategy recommended:

- Lighting intensity standards closer to the international best practices
- Lighting quality standards
- Introduction of green technologies
- Reduction of equivalent operation hours (including Dimming)
- and an implementation program

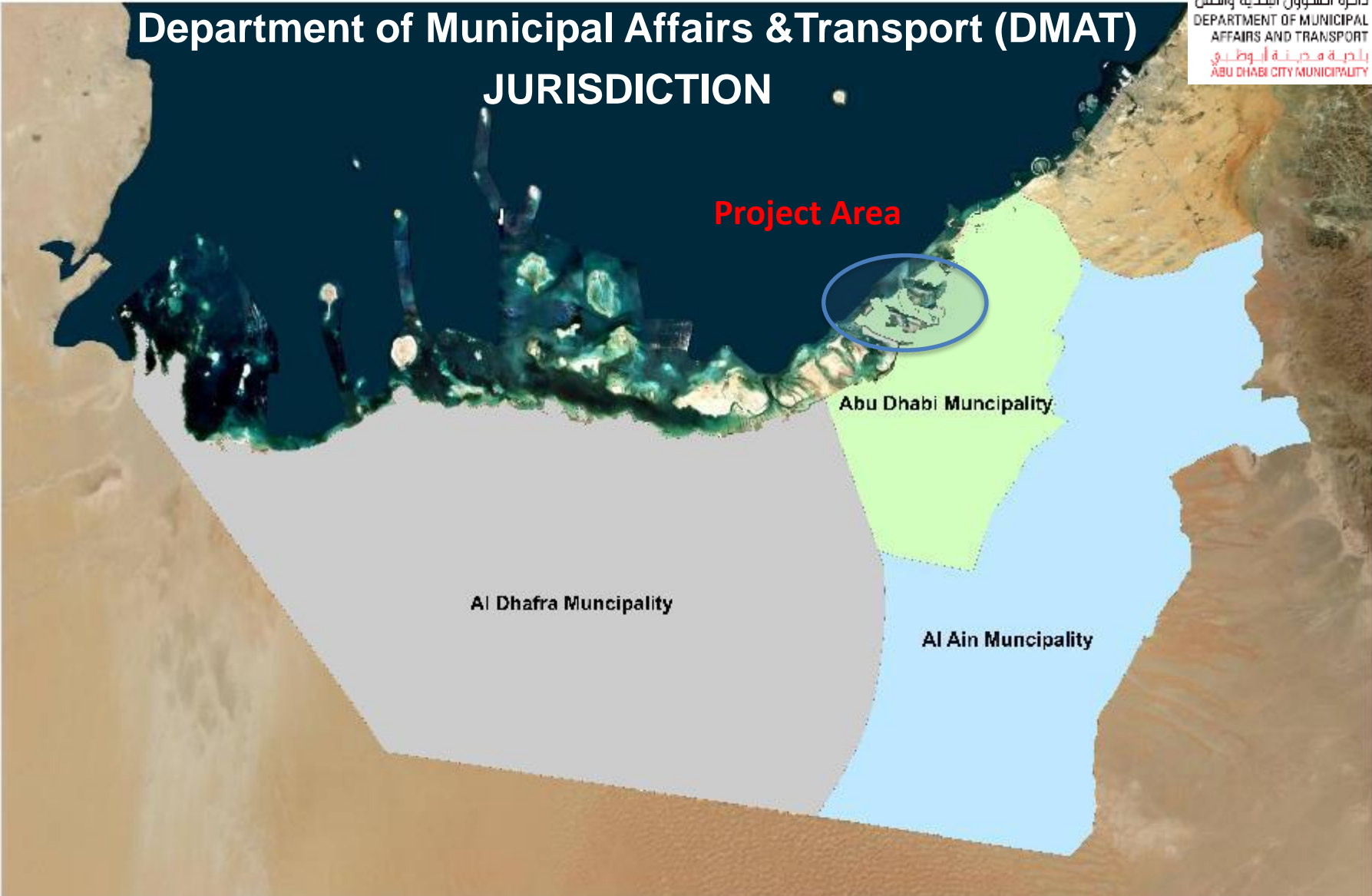
Original Strategy Benefits :

- Lighting level is approximately 60% lower
- Greater energy efficiency (around 67%)
- 67% reduction of CO2 emissions
- 80% Maintenance cost reduction



Department of Municipal Affairs & Transport (DMAT)

JURISDICTION



Project Title: NOOR ABU DHABI PROJECT-Phase I:
 Smart LED Lighting Retrofit For AD Island Streets
 In Partnership With The Private Sector

Drawing Title: DMAT MUNICIPALITIES
 ABU DHABI EMIRATE



ADM JURISDICTION



NOOR ABU DHABI PROJECT-Phase I:
Smart LED Lighting Retrofit For AD Island Streets
In Partnership With The Private Sector

Contract Title

ABU DHABI MUNICIPALITY
HIGHWAY NETWORK



PPP Concession Goals for ADM

ADM's objective is to fulfill the EC resolution of 2011 regarding retrofitting the existing lighting to the new standards and power saving technology and to upgrade the city's street lighting inventory to a more sustainable LED-based technology to achieve the following:

- Replace the old lighting system with more energy efficient alternatives
- Reduce energy consumption and bills, hence reduce ADM's total annual budget cost of street lighting
- Shift the upfront cost of the lighting system replacement to the private sector partners
- Reduce luminaire related maintenance expenses and ensure efficient O&M efforts
- Shift luminaire related maintenance tasks to the private sector partners



PROJECT REQUIREMENTS

Dr. Jamal Elzarif

Technical Advisor

Scope of Works

The Municipality of Abu Dhabi City (ADM) is planning to implement a street lighting retrofit program that covers Abu Dhabi Mainland and the Island.

Phase 1 project scope of works covers Abu Dhabi Island only and includes the following tasks:

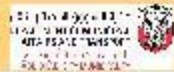
- Mobilization and lighting network inspection
- Installation of wireless ‘smart’ lighting control/monitoring system backbone
- Replace the old conventional discharge luminaires with more energy efficient optical LED alternatives complete with integral smart lighting system components
- Safe Disposal of old discharge lamps in accordance to UAE hazardous waste regulations and hand over all other removed fixture parts to ADM
- Operate and maintain, for the concession period, all installed LED luminaires and smart lighting system components
- Handback the assets in a working condition to ADM after concession term

PPP Concession Service Area

ADM plans Phase 1 as a pilot LED street lighting project to validate the achievement of ADM's goals

Pilot project will be:

- Replacement of 42,632 Luminaire in Abu Dhabi Island street lighting network that are still HPS/MH with LEDs
- Current ADM LEDs will continue to be managed by ADM and not transferred to the PPP concession
- Smart control system will be added to all new LED installations with system capacity to add entire Abu Dhabi Municipality area
- ADM will evaluate the performance of this project phase before potentially proceeding with other areas (Northern and Southern areas under ADM management)



NOOR ABU DHABI PROJECT-Phase I:
Smart LED Lighting Retrofit For AD Island Streets
In Partnership With The Private Sector

Drawing Title

ABU DHABI ISLAND SUB ZONES



Existing Street Lighting Assets Luminaires by Type

Existing Conventional Luminaries

Wattage					
150 or Less	151 - 400 (10m Poles)	400 (14m Poles)	1000	1000 (High Mast)	Total
4320	25710	4584	5732	2286	42632

AD Island
All 5-Zones

Existing LED Luminaries - Outside Scope of Retrofit Tender

Wattage						
157	200	230	240	250	277	Total
740	52	0	600	0	588	1980

Smart Control System requirements include:

- Ability to measure actual energy use (for ADM payments to Concession Company)
- Ability to implement dimming regime
- Ability to confirm each luminaire performance with communications units (for KPI deductions)
- Ability to promptly detect failure and repair times (for KPI deductions)
- Ability to expand (in future and not part of the pilot PPP concession project) Smart Control System capacity to include existing ADM LED service areas

RFP Circulation Brief

- ADM is expected to circulate a Request For Proposals in the coming months.
- The RFP will address the Administrative and technical requirements as well as the financial requirements for the project
- The scoring of the Administrative and Technical and Financial is yet to be agreed
- The bidders are expected to respond to the issued RFP within 6-weeks
- Administrative and Technical and Financial proposals are expected to be evaluated within 3 weeks
- Award is expected to take place within 8-weeks
- Execution of Project Agreement to follow expeditiously

Project Requirements



TECHNICAL

Project Location
Available Lighting Data
Performance Specs & KPI
O&M Requirements
Smart Control System
Delivery Schedule

CONTRACTUAL / PROCUREMENT

Tendering Process
RFP to be circulated
Concession Agreement
Company Legal Structure
Tender Evaluation
Risk Sharing Strategy

COMMERCIAL

Project Financial Model
Payment Mechanism
Term of the Concession
Handback Regime
Performance KPIs

Project Team



EXECUTIVE DIRECTOR MUNICIPAL INFRASTRUCTURE & ASSET SECTOR

Engr. Majed Alkatheeri

ADM PROJECT TEAM

Eng. Sami Alhashmi

Head of Infrastructure Support

Eng Husain Al Saeedi

Head of PPP Advisory Committee

Dr. Jamal El Zarif

Technical Advisor

Engr. Eiman Al Ameri

Sr. Project Manager

Eng. Martin Valentine

Lighting Expert

Project Consultant

Parsons - De Leuw Cather Ltd.

CONTRACTUAL ADVISORS

Cleary Gottlieb (CGSH)

FINANCIAL ADVISOR

p3point

ADM PROJECT ADVISORY COMMITTEE

Eng. Ahmed Al Saedi – **Operation & Control of Infrastructure Networks**

Engr. Wada'atullah Mohamed – **Procurement**

Mr. Mohamed Al Ali – **Legal**

Engr. Hossam Eldin Lotfy - **Contracts Management**

Engr. Amani Al Samani – **Infrastructure Support**



COFFEE BREAK

9:45 – 10:00



PROJECT TECHNICAL REQUIREMENTS

Martin Valentine

Lighting Expert

Project Location / Phasing

The first tender encompasses the Island as below and split into 5- installation phases

Mobilization

3-month

Smart Lighting System
Backbone Put In Place

Install zone-1

3-month

Concession O&M 10-years

Handback

3-month

Zone-2

3-month

Zone-3

3-month

Zone-4

3-month

Zone-5

3-month

Concession O&M 10-years

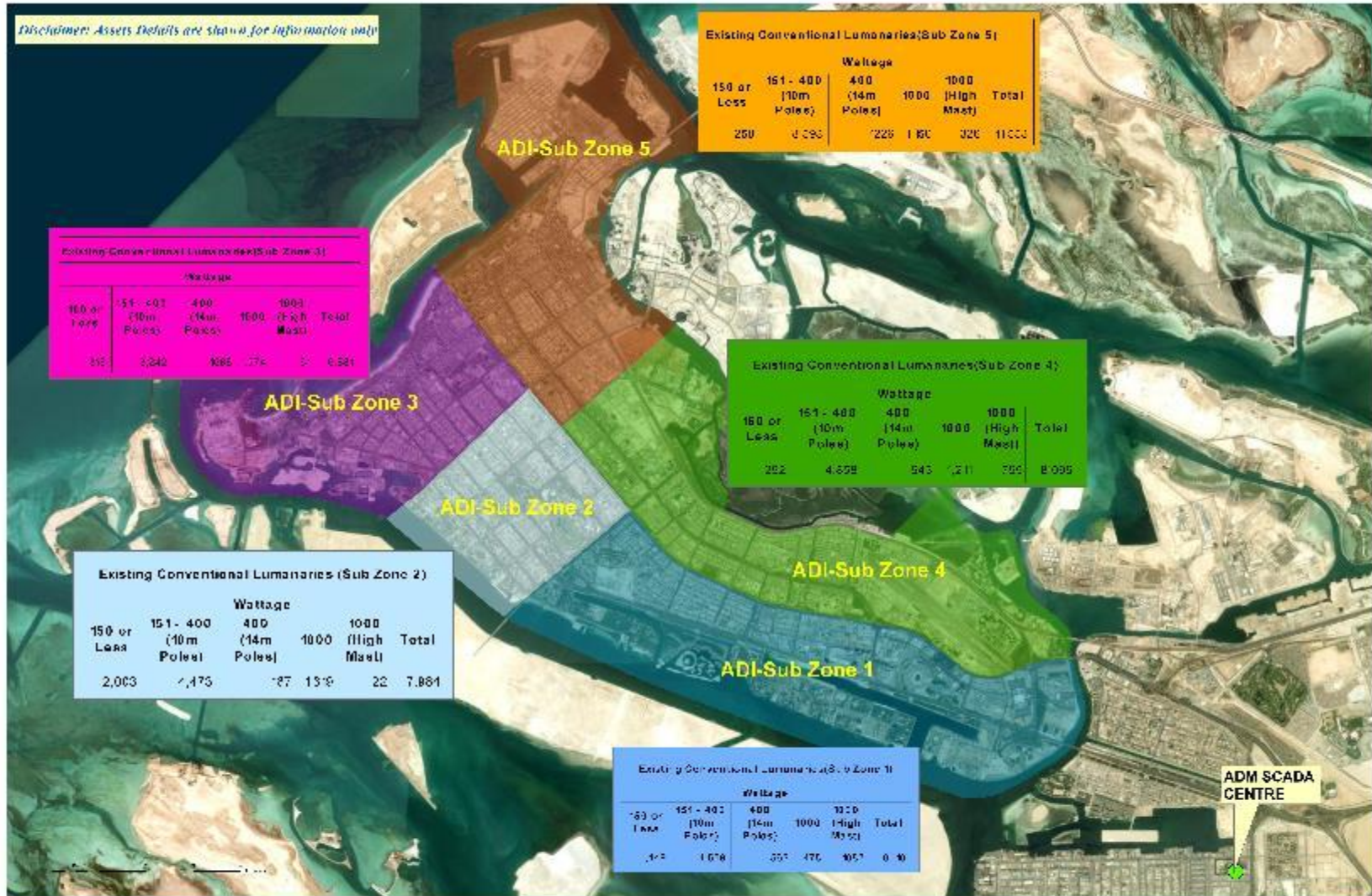
Handback

3-month

Concession Duration – 11.75 years for All 5-Zones

Lighting Assets Data

The Asset Inventory data is available in GIS format. There are approx. **42,632** fixtures to be replaced with 'smart' LED luminaires



	<p>NOOR ABU DHABI PROJECT-Phase I: Smart LED Lighting Retrofit For AD Island Streets In Partnership With The Private Sector</p>	<p>Document Title: STREET LIGHTING DETAILS ABU DHABI ISLAND</p>	
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Lighting Assets Data- Abu Dhabi Island

Existing Conventional Luminaires						
Wattage						
Sub-Zone 1	150 or Less	151 - 400 (10m Poles)	400 (14m Poles)	1000	1000 (High Mast)	Total
	1,449	4,539	562	478	1082	8110
Sub-Zone 2	150 or Less	151 - 400 (10m Poles)	400 (14m Poles)	1000	1000 (High Mast)	Total
	2,003	4,473	167	1,319	22	7,984
Sub-Zone 3	150 or Less	151 - 400 (10m Poles)	400 (14m Poles)	1000	1000 (High Mast)	Total
	318	3,242	1686	1,574	61	6,881
Sub-Zone 4	150 or Less	151 - 400 (10m Poles)	400 (14m Poles)	1000	1000 (High Mast)	Total
	292	4,858	943	1,211	795	8,099
Existing Conventional Luminaires						
Wattage						
Sub-Zone 5	150 or Less	151 - 400 (10m Poles)	400 (14m Poles)	1000	1000 (High Mast)	Total
	258	8,598	1226	1,150	326	11,558

Design Requirements

- Bidders will submit a Project Management Plan, within the mobilization period, highlighting major aspects of the project including project staffing and key managers, risk management plan, procurement/installation plans, traffic detours, materials submittals, O&M plans etc.
- Bidders will use the Abu Dhabi Government Lighting Manual (ref: PR-402) as the basis of all fixture & design criteria, and lighting calculations/verification. Manual can be downloaded from the following link: <https://qcc.abudhabi.ae/en/isgl/>
- Bidders must propose LED street lighting fixtures for all street solutions that hold QCC Certificates of Conformity
- Bidders will have specialised design team who will provide supporting lighting design and calculations for the LED retrofit aligned 100% with the Lighting Manual
- Bidders will have to provide a clear installation solution, design calculations and method statement on retrofitting High Mast poles (30.5meters); and how they will ensure complete conformity to the lighting standards for the applicable road categories
- Bidders will have to conduct an existing condition survey within the mobilization period to assess the conditions of the assets and report any deficiencies and to help formulating their fixture replacement strategy
- Bidders to note; any luminaire/smart system warranty extension offered to ADM beyond the concession period will be an additional consideration within Tender technical reviews

Lighting Standards



The 2016 Modified Street Lighting Design Standards

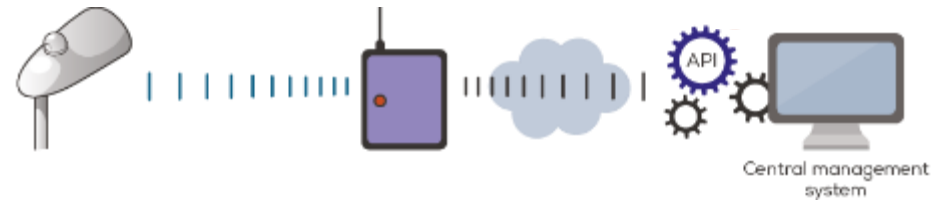
To BS-EN/CEN5489 & BS-EN/CEN13201 Standards/Road Classes & aligned USDM Designations ^{*3}						Pole Heights, Spacings & Priority Arrangements ^{*2}
Area/Roadway Type/ Lighting Class	Minimum Average Design Level: Luminance(L)=CD/m ² Illumination(Em)=LUX	Uniformity Ratio (Minimum to Average)	Longitudinal Uniformity (Minimum to Maximum)	Tl ^{*1}	SR (EIR ^{*9})	
Highways/Freeways (100kph or higher) CEN Lighting Class ME2 ^{*3}	1.0 CD/m ² (Conflict Areas 30Lux)	Uo≥0.4	Ul ≥ 0.7	≤10%	≥0.5 (≥0.35 ^{*9})	20m Pole Height 80-95m Spacing Median Arrangement ^{*8}
Major Arterials (80Kph) CEN Lighting Class ME2 ^{*3}	1.0 CD/m ² (Conflict Areas & Crosswalks 30Lux)	Uo≥0.4	Ul ≥ 0.7	≤10%	≥0.5 (≥0.35 ^{*9})	20m Pole Height 80-95m Spacing Median Arrangement ^{*8}
Arterials (60Kph) (USDM: Boulevards) CEN Lighting Class ME2 ^{*3}	1.2 CD/m ² (Conflict Areas & Crosswalks 30Lux)	Uo≥0.4	Ul ≥ 0.7	≤10%	≥0.5 (≥0.35 ^{*9})	14m Pole Height 55-69m Spacing Median Arrangement ^{*8}
Secondary Arterial (USDM: Avenues) CEN Lighting Class ME3a ^{*3}	0.8 CD/m ² (Conflict Areas & Crosswalks 20 Lux)	Uo≥0.4	Ul ≥ 0.7	≤15%	≥0.5 (≥0.3 ^{*9})	14m Pole Height 55-69m Spacing Median Arrangement ^{*8}
Sector Internal Roads (USDM: Streets) CEN Lighting Class ME4a ^{*3}	0.4 CD/m ² (Conflict Areas & Crosswalks 15Lux)	Uo≥0.4	Ul ≥ 0.6	≤15%	≥0.5 (≥0.3 ^{*9})	10m Pole Height 40-49m Spacing Single-Sided
Access Lanes (USDM) CEN Lighting Class ME5 ^{*3}	0.3 CD/m ² (Conflict Areas & Crosswalks 15Lux)	Uo≥0.4	Ul ≥ 0.4	≤15%	≥0.5 (≥0.3 ^{*9})	10m Pole Height 40-49m Spacing Single-Sided
Traffic Conflict Areas (Ramps, Intersections, Roundabouts etc.)	Per Road Type as stated above	Uo≥0.4	N/A	≤15%	If applicable	To Match Road(s) ideally, otherwise lower (10, 14 & 20m only) heights used

Street Configuration Assessment

Road Type	Typical Worst Case Configurations	Lane Arrangement	Parking-1 Width (Metres)	Shoulder-1 Width (Metres)	Roadway-1 Width (Metres)	Median Width (Metres)	Roadway-2 Width (Metres)	Shoulder-2 Width (Metres)	Parking-2 Width (Metres)	Pole Spacing (Metres)	Total Road Width (Metres)	Sectors with Highest Light Pole Concentrations	Luminaire Arrangement	Pole Height (Metres)	
STREET	1	2	4	-	2 X 3.65	-	-	-	6.7	40	7.3	Al Bahya	Single-Sided	10	
		2	4	-	2 X 3.65	-	-	-	6.7	40	7.3	Al Bahya	Single-Sided	10	
		2	4	-	2 X 3.65	-	-	-	-	6.7	40	7.3	Al Bahya	Single-Sided	10
		2	4	-	2 X 3.65	-	-	-	-	6.7	40	7.3	Al Bahya	Single-Sided	10
	2	2	12	1.1	2 X 3.65	-	-	1.1	12	30	7.3	Musaffah	Opposite	10	
		2	12	1.1	2 X 3.65	-	-	1.1	12	30	7.3	Musaffah	Opposite	10	
		2	12	1.1	2 X 3.65	-	-	1.1	12	30	7.3	Musaffah	Opposite	10	
		2	12	1.1	2 X 3.65	-	-	1.1	12	30	7.3	Musaffah	Opposite	10	
		2	12	1.1	2 X 3.65	-	-	1.1	12	30	7.3	Musaffah	Opposite	10	
	3	2	4.35	-	2 X 3.65	-	-	-	4.35	35	7.3	Al Shamkha	Single-Sided	10	
		2	4.35	-	2 X 3.65	-	-	-	4.35	35	7.3	Al Shamkha	Single-Sided	10	
		2	4.35	-	2 X 3.65	-	-	-	4.35	35	7.3	Al Shamkha	Single-Sided	10	
		2	4.35	-	2 X 3.65	-	-	-	4.35	35	7.3	Al Shamkha	Single-Sided	10	
	4	2	4.5	-	2 X 3.65	-	-	-	4.5	30	7.3	Al Falah	Single-Sided	10	
		2	4.5	-	2 X 3.65	-	-	-	4.5	30	7.3	Al Falah	Single-Sided	10	
		2	4.5	-	2 X 3.65	-	-	-	4.5	30	7.3	Al Falah	Single-Sided	10	
		2	4.5	-	2 X 3.65	-	-	-	4.5	30	7.3	Al Falah	Single-Sided	10	
	5	2	-	1.85	2 X 3.65	-	-	1.85	-	35	7.3	Al Shamkha	Single-Sided	10	
		2	-	1.85	2 X 3.65	-	-	1.85	-	35	7.3	Al Shamkha	Single-Sided	10	
		2	-	1.85	2 X 3.65	-	-	1.85	-	35	7.3	Al Shamkha	Single-Sided	10	
2		-	1.85	2 X 3.65	-	-	1.85	-	35	7.3	Al Shamkha	Single-Sided	10		
AVENUE	1	2+2	-	-	2 X 3.65	6	2 X 3.65	-	-	50	7.3	Al Falah	On Median	14	
		2+2	-	-	2 X 3.65	6	2 X 3.65	-	-	50	7.3	Al Falah	On Median	14	
		2+2	-	-	2 X 3.65	6	2 X 3.65	-	-	50	7.3	Al Falah	On Median	14	
		2+2	-	-	2 X 3.65	6	2 X 3.65	-	-	50	7.3	Al Falah	On Median	14	
		2+2	-	-	2 X 3.65	6	2 X 3.65	-	-	50	7.3	Al Falah	On Median	14	
	2	2+2	-	-	2 X 3.65	5.5	2 X 3.65	-	-	50	7.3	Al Shamkha	On Median	14	
		2+2	-	-	2 X 3.65	5.5	2 X 3.65	-	-	50	7.3	Al Shamkha	On Median	14	
		2+2	-	-	2 X 3.65	5.5	2 X 3.65	-	-	50	7.3	Al Shamkha	On Median	14	
		2+2	-	-	2 X 3.65	5.5	2 X 3.65	-	-	50	7.3	Al Shamkha	On Median	14	
		2+2	-	-	2 X 3.65	5.5	2 X 3.65	-	-	50	7.3	Al Shamkha	On Median	14	
	2+2	-	-	2 X 3.65	6.5	2 X 3.65	-	-	45	7.3	Musaffah	On Median	14		
	2+2	-	-	2 X 3.65	6.5	2 X 3.65	-	-	45	7.3	Musaffah	On Median	14		

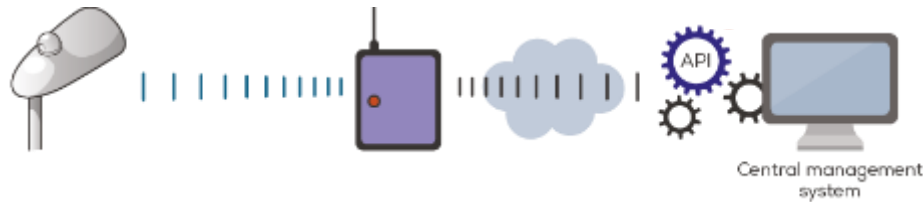
'Smart' Monitoring System

The project requires provision of a new a 'Smart' (wireless PLMS and CMS) control system that would allow the ADM to centrally operate the street lighting system and monitor down to individual luminaires.



The smart control system should provide, but not limited to, the following **Public Lighting Management System (PLMS) – Performance Specifications**

'Smart' Monitoring System



The smart control system should provide, but not limited to, the following:

- Detailed energy consumption reports (notionally fixture-measured LSM-file format) to ADM's required format and frequency
- Identify and alert operation failures by fixture (DALI drivers required)
- Pre-installed to the lighting fixtures
- Transmission hubs(base-stations/nodes etc.) designed and located to give full coverage of the network area
- Assets User Customized database, open source, Smart City capability
- Built-in reporting function including, Energy Usage per luminaire (or groups) including wattage, voltage, pf, current, luminaire burning hours: cumulatively, nightly or a user defined period
- CMS able to integrate future tender zones fitted with any marketplace wireless smart PLMS system to maintain functionality
- Bidders will also have to provide future (i.e. beyond concession) maintenance requirements for the smart control system, units and software updates



QCC CERTIFICATION REQUIREMENTS

Dr. Simon Miller

Product Conformity Specialist
Quality and Conformity Council

Dr. Simon

10 Sept 2017



Abu Dhabi Quality and Conformity Council

Exterior LED Luminaire certification process and requirements

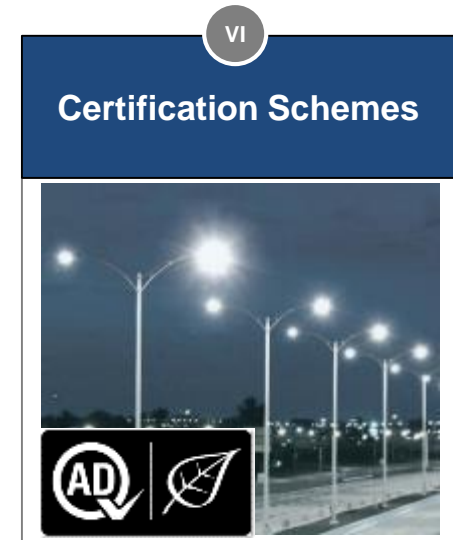
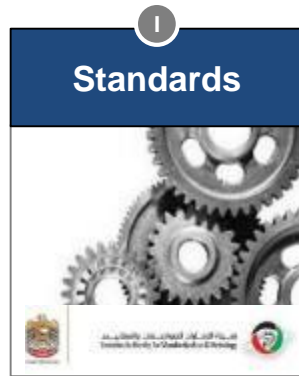
This document is confidential to the Quality and Conformity Council

مجلس أبوظبي للجودة والمطابقة
ABU DHABI QUALITY AND CONFORMITY COUNCIL



The QCC mission: To lead, facilitate and develop an efficient, effective and globally integrated quality infrastructure in Abu Dhabi

that promotes a culture of quality, enhances industrial development and competitiveness as well as ensures consumer safety.



The QCC Certification Scheme Services Sector performs two main services: Scheme Development and Certification Issuance

The two services are complementary and involve support from all QCC departments

Certification Scheme Development



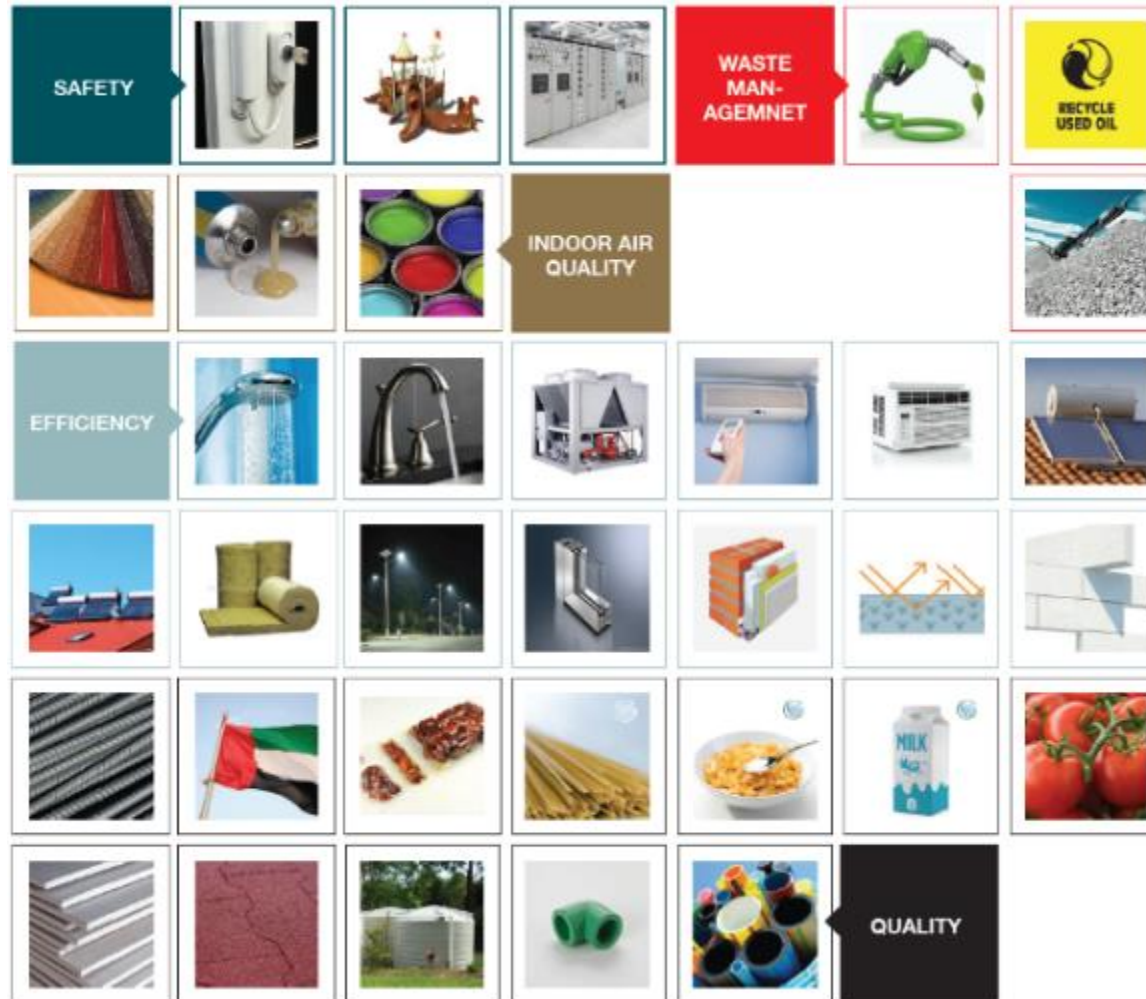
- Define Scheme Concept
- Convene Technical evaluation committees
- Conduct Technical assessment of product specifications
- Create Scheme Hypothesis
- Assess Environmental, Social and Economic Impact of scheme adoption
- Develop Implementation Program
- Launch Scheme and follow up marketing

Certification Issuance



- Promote conformity scheme adoption
- Assist scheme applicants
- Application review
- Application technical evaluation
- Certification decision by Committee
- Certified product, personnel, system surveillance
- Support on Trustmark promotion

QCC develops Products Certification Schemes that distinguishes products of good quality, safety and environmental performance



The QCC Exterior LED Luminaire certification scheme supports qualification of product quality, safety and performance



Regulators

Certification Bodies

دائرة الشؤون البلدية والنقل
DEPARTMENT OF MUNICIPAL
AFFAIRS AND TRANSPORT



مجلس أبوظبي للتخطيط العمراني
ABU DHABI URBAN PLANNING COUNCIL



بلدية مدينة أبوظبي
ABU DHABI CITY MUNICIPALITY



DEPARTMENT OF MUNICIPAL AFFAIRS
AL AIN CITY MUNICIPALITY



مجلس أبوظبي للتخطيط العمراني
Abu Dhabi Urban Planning Council



Industry



Manufacturers



Suppliers



Applicants



Associations

Initially developed from the DMA Roadway and Public Realm lighting specifications 2011 through a working group consisting of regulators, industry and certification experts

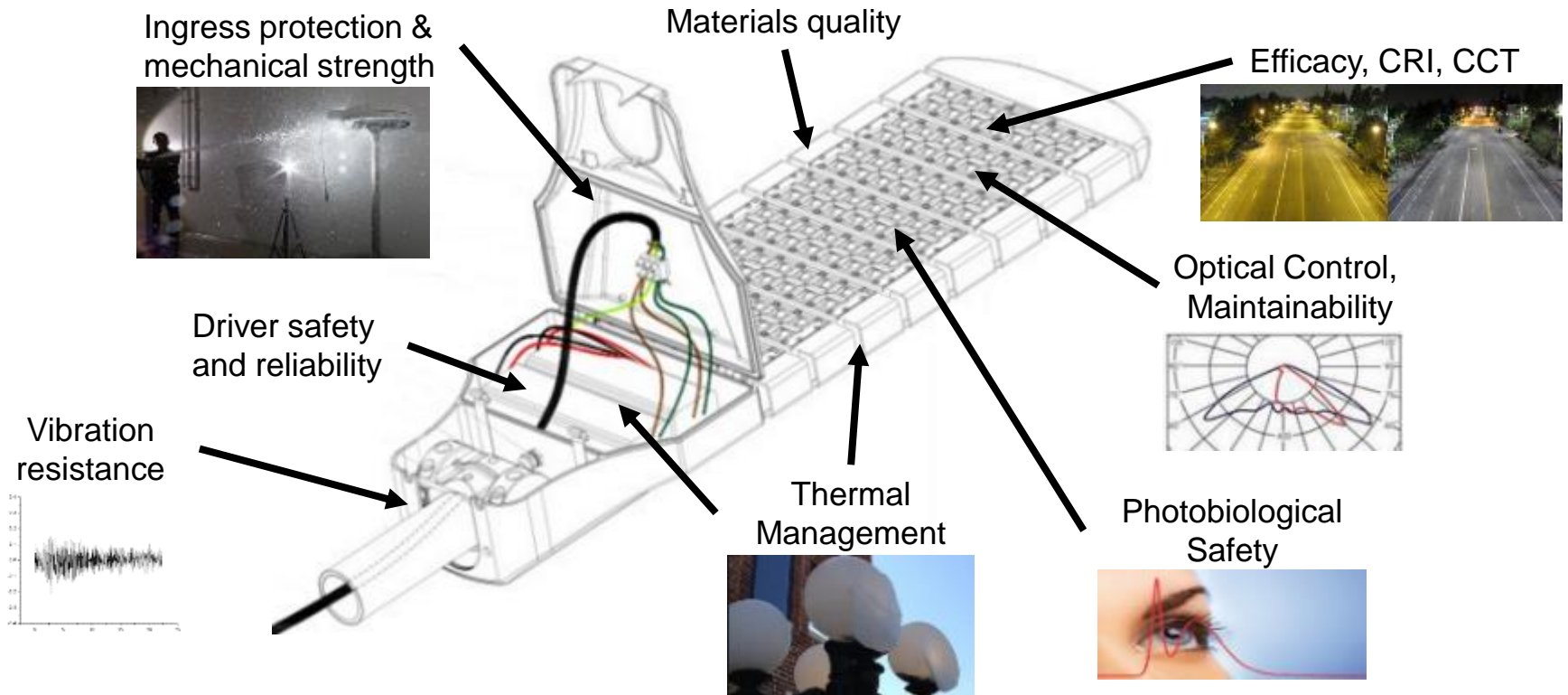


QCC assessment and surveillance plan



Abu Dhabi Lighting Manual 2016

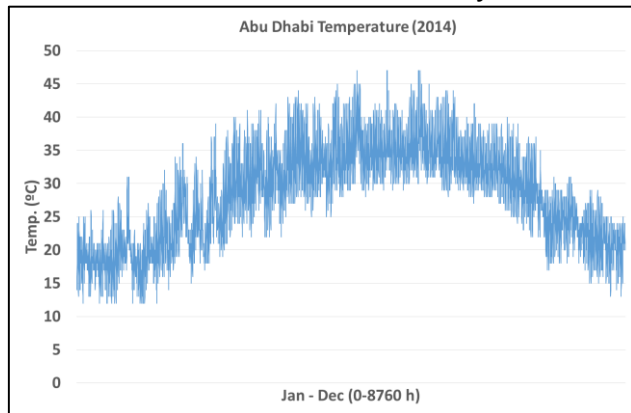
QCC Certification requirements cover quality, performance and safety aspects of product compliance to the DMAT specifications



What is essential to Abu Dhabi, the UAE and the Gulf region that current international certification often doesn't capture?

Extreme environmental conditions which impact exterior luminaire performance

Heat and Humidity



Abu Dhabi city spends 1500 hrs (62 days) per year at an ambient temperature $>36^{\circ}\text{C}$

Dust and pollution



The Hamdan Street 2015 daily average PM 10 concentration was 27-times higher than WHO guidelines

Extreme weather



9 March 2016: 120 kph winds, 300mm rainfall (average is 100mm per year)

The QCC Exterior LED Luminaire Certification Process



■ Applicant ■ QCC

Step 1: Download the Assessment and Surveillance plan and prepare a submission against the scheme requirements. Meeting with QCC product certification can be requested

Step 2: Complete the application form and send to conformity@qcc.abudhabi.ae along with required evidence of conformity detailed in the scheme (via dropbox)

Step 3: Pay application fee invoice (AED 600)

Step 4: QCC performs a technical review of the submission and provides a recommendation for requirement of further evidence or recommendation for approval

Step 5: If the product(s) are recommended for approval, pay technical review fee invoice (AED 2500)

Step 6: QCC Certification Committee final approval

Step 7: Pay Trustmark license fee (AED 15000 first year) plus certificate printing fee (AED 100 / certificate)

Step 8: QCC issues AD Trustmark license and certificates

Step 9: QCC ongoing market surveillance of certified products

All QCC-certified luminaires are listed on the QCC public Online database 'Manna'

Database listings include details on:

- Certification holder (Supplier, distributor)
- Manufacturer and manufacturing country
- Approved Luminaire Model Numbers
- Certification renewal/expiry date



In addition, specifics on the luminaire model variants which are certified include:

- LED quantity/model
- Colour temperature(s)
- Color rendering index (CRI)
- Driver model(s)
- Approved drive currents



https://manaa.ae/PSS/Search/OnlineCertSearch_En.aspx?&adv=false

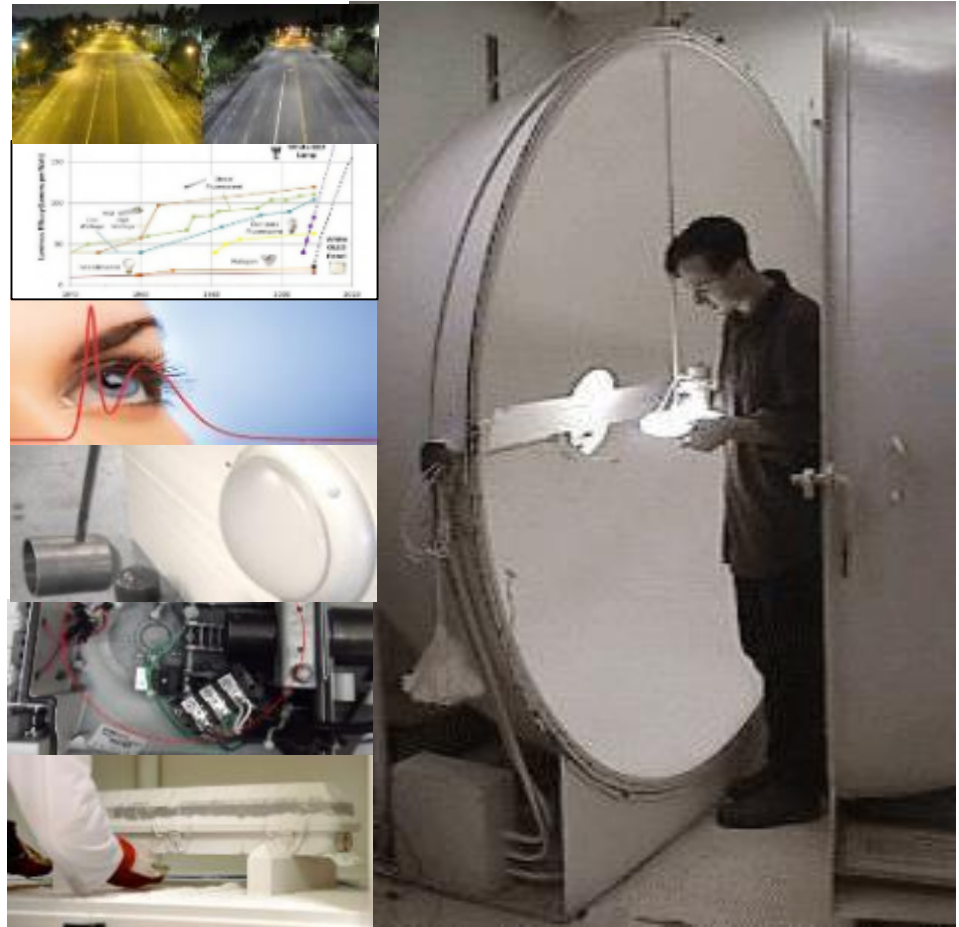


QCC-certified products are continuously monitored for compliance through QCC market surveillance activities

Annually, a sample of the products certified for each license holder are selected for testing against particular requirements of the QCC scheme

Market surveillance ensures:

- Level playing field for certified products
- Testing outside of the 'Golden' sample
- Updated information on product quality and performance
- Integrity of the Trustmark





Contact for further enquiries:

Products certification: conformity@qcc.abudhabi.ae

Certification Scheme Download: qcc.abudhabi.ae/en/Pages/ConformitySchemes.aspx

Abu Dhabi Lighting Manual Download: qcc.abudhabi.ae/en/isgl/Pages/registration.aspx

THANK YOU



PROJECT CONTRACTUAL & LEGAL REQUIREMENTS

Mr. Gamal Abouali

Partner

Cleary Gottlieb



Contractual Forms of Agreement

Project Documentation



- **Project Documents will consist of the following:**
 1. Project Agreement and Schedules
 2. Performance Security Documents
 3. Financing Documents and Lenders' Direct Agreement(s)
 4. Equity Members Funding Agreements

1. Project Agreement

- **The Project Agreement will include the key legal requirements governing the Project, including:**
 - Technical requirements
 - Bidder Financial model in Electronic copy
 - Payment mechanism
 - Insurance requirements
 - Forms of performance security
 - Key Contractor and Key Personnel requirements
 - Change procedures and costs calculation
 - Termination provisions (with and without cause)
 - Required terms of Financing Documents
 - Form of Lenders' Direct Agreement(s)
 - Applicable laws and standards
 - Required Permits, Licenses and Approvals
 - Applicable Labor and Environmental Codes



2. Performance Security

- **Concession Company will be required to deliver forms of performance security to secure its obligations under the Project Agreement (*As applicable*):**
 - Equity Letter(s) of Credit in an amount equal to the unfunded equity committed to the Project (20% of total Project cost).
 - Performance Bonds
 - Parent Guaranty may be additionally required depending on creditworthiness and structure of the Concession Company.



3. Financing Documents and Direct Agreements

- **Funding Agreements:**
 - Concession Company may incur Project Debt in the form of loans, bonds, intercompany loans, and other acceptable forms of Project Debt
 - Financing institutions must be licensed in UAE.
- **Security Documents:**
 - Project Debt may not be recourse to the Project assets but may be secured by Concession Company's interest under the Project Agreement
 - ADM will continue to hold exclusive title to the Improved Street Lighting System at all times, free and clear of liens
- **Lenders' Direct Agreement:**
 - Direct agreement between ADM and Lenders will provide for Lender and ADM step-in rights upon an Event of Default

Project Agreement: Key Terms



- **Parties:**
 - ADM
 - Concession Company (if Concession Company is an unincorporated joint venture (“UJV”), each member of the UJV will be party to the Project Agreement)
- **Term:**
 - 3 month Mobilization Period following the Commencement Date of the Contract
 - Procurement & installation of smart city backbone structure within the mobilization period and should be ready before any installation in zone-1
 - 15 months Installation Period (3 months per Zone)
 - 10 years O&M Period for each completed Zone
 - 3 month Handback Period for each Zone
- **Payments:**
 - ADM will make Availability Payments to Concession Company during the O&M Period of each completed Zone
- **Obligations:**
 - Concession Company responsible for installation, finance, operation and maintenance of the Project
 - ADM responsible for payments under the Project Agreement and provision of utilities

Project Agreement: Key Terms

- **Representations and Warranties:**
 - ADM will provide the Concession Company with reference information documents necessary for evaluating the Project
- **Change in Control:**
 - Change in Control of Concession Company subject to ADM consent throughout the term
 - If the Concession Company is a UJV, each member of the Concession Company will additionally be subject to the Change of Control restrictions
- **Joint and Several Liability:**
 - If Concession Company is a UJV, each member of the UJV will be a party to the Project Agreement and will be jointly and severally liable to ADM
- **Concession Company Defaults:**
 - Customary for projects of this nature, including abandonment, bankruptcy, dissolution, persistent failure to meet KPIs and Key Contract termination, with cure periods to be agreed
 - ADM may terminate the Agreement and Performance Security may be drawn on as liquidated damages following Concession Company Defaults

Project Agreement: Key Terms

- **Assignment:**
 - Agreement not assignable by Concession Company without ADM consent
- **Dispute Resolution:**
 - Disputes will be referred to an adjudicating board appointed by the parties and, if not resolved, will be referred to arbitration in accordance with the Abu Dhabi Commercial Conciliation & Arbitration Center's Procedural Regulations
 - Seat of arbitration will be the Emirate of Abu Dhabi
- **Governing Law:**
 - Agreement governed by UAE law and subject to UAE courts' jurisdiction



Project Agreement: Key Terms

- **Key Contracts entered into by the Concession Company will be subject to approval by ADM. Those include:**
 - Any Installation Contract
 - Any O&M Contract
 - Material contracts for lighting parts and supplies in excess of an agreed threshold
- **Certain contractual provisions will be scheduled in the Project Agreement and must be included in all Key Contracts. Those include:**
 - must be assignable to ADM upon termination or expiration of the Project Agreement
 - must name ADM as a third party beneficiary
 - must be subject to ADM approval prior to any amendment, replacement or termination
- **Concession Company will also be required to appoint and maintain certain Key Personnel throughout the Term (Changes Subject to ADM Approval). Those include:**
 - Project Manager
 - Project Engineer
 - Concession Company Representative

Key Terms: Risk Sharing Arrangement

- **ADM bears certain risks under the Project Agreement.**
 - ADM bears risk of energy cost fluctuations in connection with utilities
 - Bids include all currently known taxes including VAT. ADM will be responsible for any changes in the VAT rate after execution of the Project Agreement.
 - ADM responsible for repairing pre-existing defects in poles, caps, cables and wires (based on Concession Company field surveys)

Key Terms: Risk Sharing Arrangement

- **Concession Company bears certain risks that it is more suited to manage. Those include:**
 - Obtaining required permits, licenses and approvals to undertake the Project (including any environmental approvals necessary for disposal of HID luminaires)
 - Establishing lane closure schedule and traffic management arrangements with relevant authorities
 - Risk of technical and performance failures
 - Sub-Contractor breaches and failure to deliver



FINANCING REQUIREMENTS, PAYMENT MECHANISM AND BID EVALUATION

Mrs. Ruth McMorow

Executive Vice President

Parsons Corporation

Mr. Michael Palmieri

President and Founder of

p3point

Fundamentals of Payment Mechanism

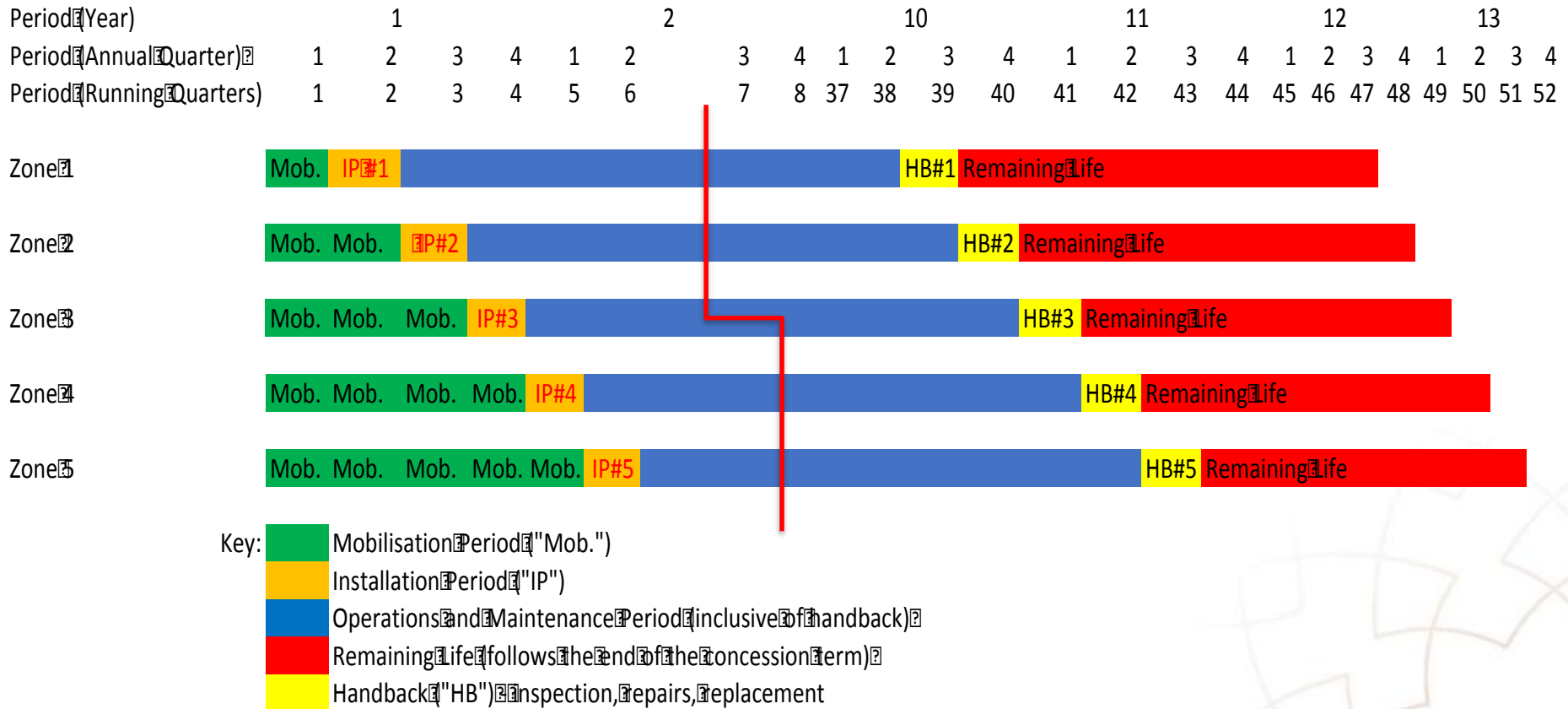
- The Project starts with a mobilisation period of 3 months for the Concession, including time for inspection and reporting damaged poles to allow ADM repairs to poles
- Each Zone has been allocated 3 months for installation
- The Smart System must be installed and functional prior to completion of the first Zone
- Once the first Zone is fully installed and operating, ADM will begin monthly payments for the first Zone
- The installation of the Project will take place over 5 Zones
- As each subsequent Zone is completed, Zones 2 through 5, ADM will start making monthly payments for each completed Zone

Fundamentals of Payment Mechanism

- ADM will make monthly payments for each Zone over a period of 10.25 years
- As each Zone reaches 10 years of monthly payments, a hand back phase of 3 months will begin.
- During the hand back phase, ADM will continue making monthly payments as usual, but there will be an inspection to ensure the hand back conditions are satisfied at 10.25 years when the Zone is handed back to ADM
- Hand back conditions require 100% of luminaires functioning and meeting the Handback requirements set in the project agreement.
- The Concession Company may be required to reserve funds and/or provide financial support to ensure the hand back conditions are satisfied at handback

PPP Concession Payments

Installation ramp up by Zones (compressed years 2 to 11)



PPP Concession Payments

- **The Monthly ADM Payments to the Concession Company will be in UAE Dirahams for each zone:**

Fixed Monthly availability payment for each Zone =

Capital Component + O&M Component – KPI Deductions

PPP Concession Payments

- **The total of all monthly payments for all the Zones is intended to provide the Concession Company with funds for:**
 - Repayment of Concession Company debt
 - Dividends to repay equity investors in Concession Company
 - Concession Company Project maintenance costs
- **ADM will pay for all electricity directly to ADDC**
- **Electricity price – no risk to Concession Company of electricity price changes**

PPP Concession Payments

- **Key Performance Indicators**

- A key performance indicator (KPI) regime will apply deductions from the monthly payments from ADM
- Deductions are based on a standard point system Non-Compliance Point (NCP), ranging from 1 to 20 NCPs per event and continue daily
- Remedy periods for most compliance requirements allow Concession Company to correct errors before NCPs start
- NCPs add up daily after remedy time has expired until compliance is met
- For some non-compliance events, or for extreme amounts of running NCPs, the contract will be terminated for cause

PPP Concession Payments

- **KPIs**
- **Non Availability**
 - Non-functioning luminaires
 - Failure to meet/ Exceeding Contracted Energy Consumption
- **Performance**
 - **Administrative/Reporting – examples:**
 - Failure to provide reports or inspections on schedule
 - Failure to submit and update the project PMP
 - **Lighting Quality – examples:**
 - Failure to provide and maintain minimum average road-surface illuminance levels
 - Failure to provide and maintain Actual Luminaire Correlated Color Temperature (CCT) and Color Rendering Index (CRI) light quality parameters

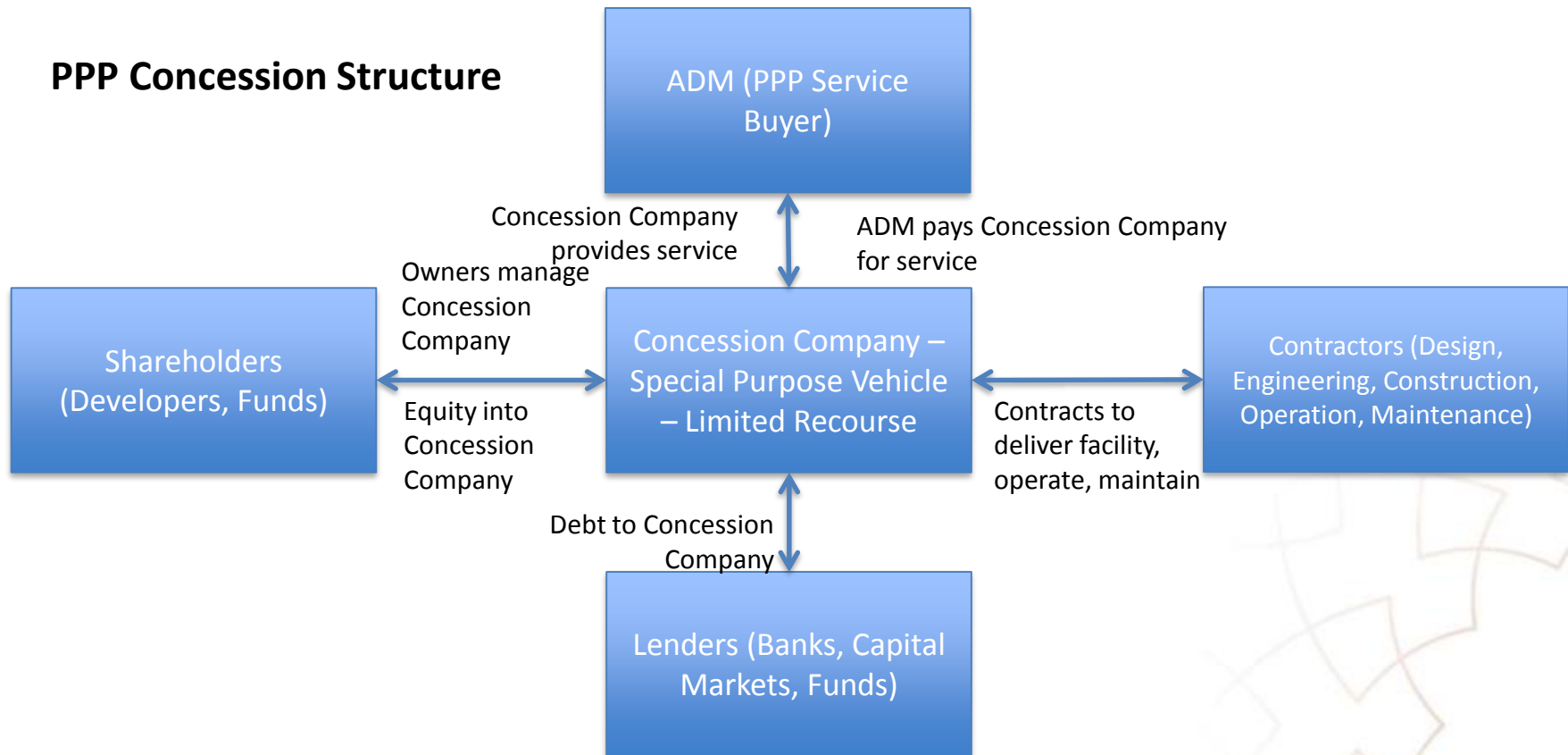
PPP Concession Payments

- **Lighting System Performance – examples:**
 - Failure to correct isolated luminaire outage(s)
 - Failure to correct isolated PLMS/CMMS hardware component outage(s)
- **Smart City Control System – examples:**
 - Failure of any base Station to communicate with the Central Monitoring Management System (CMMS)
 - Failure of any smart interface communication units to communicate with the Central Monitoring Management System (CMMS)

- **ADM is considering the following Concession Company financing requirements:**
 - Bidders must submit a financial model for the Project
 - Bidders need to provide evidence of fully committed financing to meet all Project costs
 - Equity for the Project must be at least 20% of total Project costs and must be funded fully at Financial Close or supported by acceptable bank letters of credit
 - No equity sales until all LEDs in all zones are installed, tested and properly operating
 - The majority shareholder must retain ownership of at least 51% in Concession Company for 3 years after the start of payments of Zone 5
 - ADM reasonable approval of original and any new shareholders, including any foreign shareholders

Concession Company Ownership

- Although any qualified company can submit a response to the RFP, ADM is considering the project will be structured as a typical PPP as a DBFOM (Design Build Finance, Operate and Maintain):



Bid Evaluation

- Bid evaluations will include requirements for administrative & technical and financial criteria
- Awarding the bid will be based upon a combination of Administrative/Technical and Finance components scores.

Administrative and Technical

- **Administrative criteria will include:**
 - Bidder has complied with RFP response procedures (including maximum page numbers, required certifications and notarizations)
- **Technical criteria will include:**
 - Bidder has relevant experience
 - Specifications of luminaires meet ADM\ QCC requirements
 - Public Lighting Management System (PLMS) meets requirements
 - Proposed energy consumption is demonstrated as achievable

Bid Evaluation

- **Financial criteria will include:**
 - Evidence the Bidder has financial capacity to provide or arrange debt and equity for the Project
 - Financial model that is robust and functional
 - Debt to equity ratio of 80/20 or more equity
- **Financial Scoring:**
 - Bidders will be required to submit a single amount of the total energy use (kwh) based on the operational hours and luminaire lighting requirements for each zone
 - Bidders will be required to submit a single fixed amount of Capital Component per month for each zone.
 - Bidders will be required to submit a single fixed amount of O&M Component per month for each zone.
 - Financial scoring is based on calculation of the Present Value (PV) of ADM's net savings over the entire concession term

Bid Evaluation

Highest **PV Total** gets highest financial score

	Capital Component of Monthly Payment per Zone	O&M Component of Monthly Payment per Zone	Bid Energy Savings (ADM Current Energy Use minus Bid Energy Use (kwh) per Zone)	PV of Bid Energy Savings minus total of Payments
			Multiplied by AED 0.294/kwh	PV=S-CC-OM
Zone 1	CC-1	OM-1	S1	PV1
Zone 2	CC-2	OM-2	S2	PV2
Zone 3	CC-3	OM-3	S3	PV3
Zone 4	CC-4	OM-4	S4	PV4
Zone 5	CC-5	OM-5	S5	PV5
				PV TOTAL

Bid Payment Schedule

Year/Zones	Months	Zone 1		Zone 2		Zone 3		Zone 4		Zone 5		Total	
		CC	OM	CC	OM	CC	OM	CC	OM	CC	OM	CC	OM
Q1 of Year 1*	3												
Q2 of Year 1*	3												
Q3 of Year 1*	3												
Q4 of Year 1*	3												
Q1 of Year 2*	3												
Q2 of Year 2*	3												
Q3 of Year 2*	3												
Q4 of Year 2*	3												
Year 3**	12												
Year 9**	12												
Year 10**	12												
Q1 of Year 11*	3												
Q2 of Year 11*	3												
Q3 of Year 11*	3												
Q4 of Year 11*	3												
Q1 of Year 12*	3												
Q2 of Year 12*	3												
Q3 of Year 12*	3												
Total Period	141												
TOTAL PER ZONE													
GRAND TOTAL													



THANK YOU