



# **LED Street Lighting Exhibitions in South Africa - Review and Possibilities of Demonstrating Latest LED Technologies**

**A Webinar organized by GIZ and InnovationHub, Pretoria on “International Experience with Energy Efficient Lighting Research and Demonstration: Sharing Experience and Lessons Learned.”**

**Pretoria / Berlin, 30 March 2021  
Andreas Jahn, Energy Economist**



## **A: Background and History of a LED Street Lighting Exhibition in South Africa**

### **B: Design and Alternatives of LED Street Lighting Exhibitions (Walkway, Room, Hall, Mobile)**

### **C: Some Recommendations for Future Development of LED Street Lighting Demonstration**



# **PART A: Background and History of a LED Street Lighting Exhibition in South Africa**

**A1: MEEP Programme by DoE 2011-2017**

**A2: Business Missions to Berlin 2015, 2017**

**A3: Aim and Value of a Demonstration Site**

**A4: Challenges Seen**



## A1: MEEP – The South African Municipal Energy Efficiency Programme

- **Results from 2009/2010 - 2017/2018**
  - **43,121 traffic lights (LED)**
  - **459,172 street lights (mainly LED)**
  - **1,459 high masts (LED)**
- **Total cost 1,557 Mio Rand (88,6 Mio Euro, rate 17,57 R/Euro 18.3.21)**
- **60 Municipalities participating (61.2% of population)**
- **Energy savings 921 GWh (cumulated)**









# ENERGY EFFICIENCY DEMAND SIDE MANAGEMENT (EEDSM)

## RESULTS FROM SIX YEARS OF OPERATION: 2009/2010 to 2014/2015

Department of Energy (DoE), Pretoria, South Africa

*„EEDSM is one of the world's largest and most successful energy efficiency programmes on the municipal level.“*

Kaile Maheswari, Department of Energy (DoE)  
Director Energy Efficiency Initiatives

THE DEPARTMENT OF ENERGY (DoE)  
AND MUNICIPALITIES MANAGING EEDSM



Participants in the EEDSM Programme.

Dr. Clean Energy Branch  
and Vinagie Street,  
Pretoria

DoE  
www.doe.gov.za

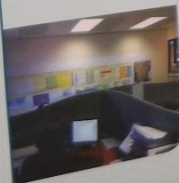
### Examples of successful EEDSM implementation



#### TRAFFIC LAMPS

Location: Swartland  
Quantity: 80 robots  
Specifics: 50W > 9W LED  
Costs: R 1,860,000  
Savings: 29 MWh/a  
Payback: 6.5 years

Total EEDSM robots: 43,121



#### OFFICE BUILDINGS

Location: Sisonke  
Quantity: 912 lights  
Specifics: 57W > 14W LED  
Costs: R 958,000  
Savings: 83 MWh/a  
Payback: 6.3 years

Total EEDSM office lamps: 407,988



#### HIGH MASTS

Location: Melk  
Quantity: 10  
Specifics: 250W > 120W VPS  
Costs: R 1,537,344  
Savings: 239 MWh/a  
Payback: 6.2 years

Total EEDSM high masts: 10



#### STREET LIGHTING

Location: Melk  
Quantity: 1,405 lights  
Specifics: 250W > 120W VPS  
Costs: R 1,537,344  
Savings: 239 MWh/a  
Payback: 6.2 years

Total EEDSM street lighting: 1,405



#### WASTE WATER

Location: Pretoria  
Quantity: 10  
Specifics: 250W > 120W VPS  
Costs: R 1,537,344  
Savings: 239 MWh/a  
Payback: 6.2 years

Total EEDSM waste water: 10



# EEDSM



## A2: Business Missions to Berlin and NRW Visiting Various LED Sites 2015, 2017

LED sales room  
LED production companies  
LED demonstration sites





30 March 2021

LED Street Lighting Exhibition













## A3: Placement of Demonstration Site

The exhibition is **directed to municipalities**, and as municipalities meet regularly in Pretoria as part of the mEEDSM Programme, a place **in Pretoria** or in the reach of Pretoria is recommended.

For the demonstration project a public street but within a guarded area to avoid vandalism. A **guarded area** allows visitors to be safely at the exhibition also after sundown.

Some guarded areas for implementation could be at SABS, the South African Bureau of Standards or CSIR, the Council for Scientific and Industrial Research or similar places.



**Guarded entrance**









**Main road to Innovation Hub, at left side wildlife area, 5 poles to next corner**



## A4: Challenges Seen to Implement a LED CATWALK/WALKWAY

- Continuous changes at counterparts at Innovation Hub
- Limited interest by some South African LED industries
- Time consuming procurement procedures
- (Financing was not an obstacle)





**Infrastructure Manager and Facility Manager of  
Innovation Hub (2nd/3rd from left)**





## Part B: Options for the LED Exhibition in South Africa

**B1: Indoor Showroom**

**B2: Indoor Showhall**

**B3: Outdoor Exhibition - Walkway**

**B4: Mobile Exhibition**

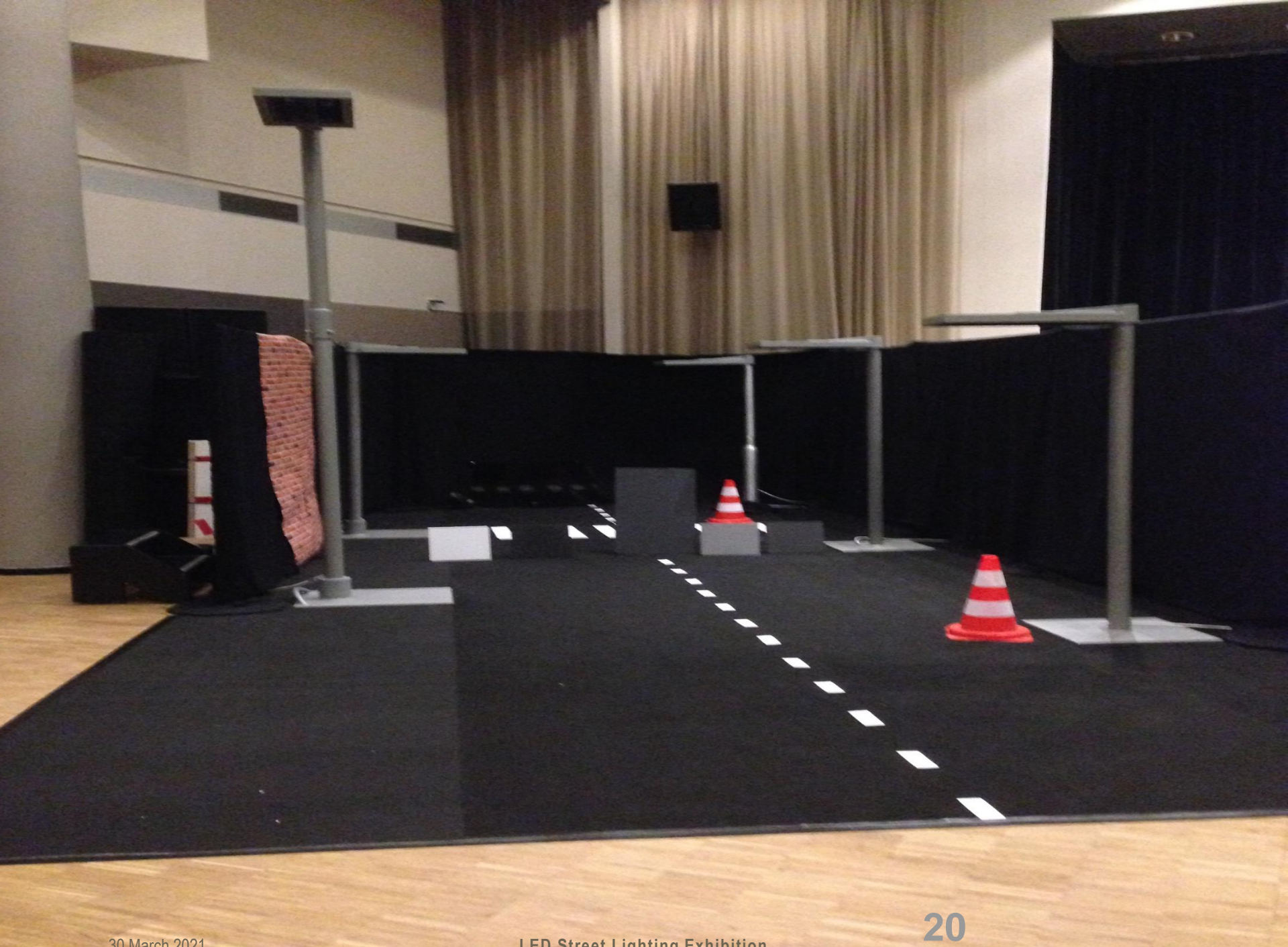


## **B1: Indoor SHOWHALL with large-scale hall, pavements, LED equipment and indoor street**

The main advantage is the independance from time and weather conditions.

A street situation with street pavement can be displayed in a hall during business hours.

Photo: Licht 2014, Den Haag, Netherlands









## B2: Indoor Showroom

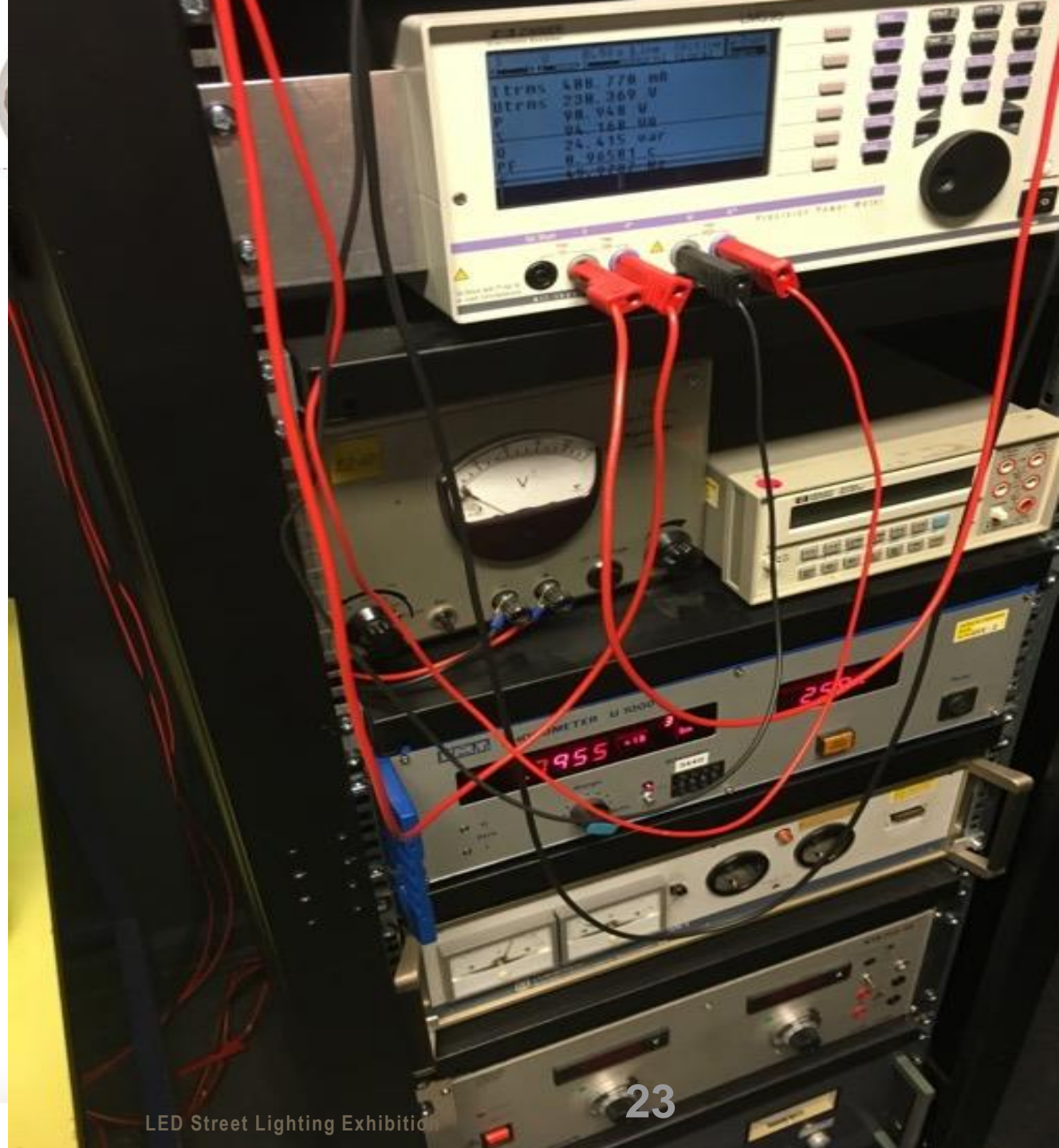
The advantage is presentation of all LED equipment

Poles with Lights

Control equipment



# Central control equipment









## B3: Outdoor WALKWAY with Poles, LED Equipment and Outdoor Street Simulation

The advantage is a nearly **perfect simulation** of different types of lighting in a real street scene.

High **costs** and long construction period are main disadvantages.

Presentation of **alternative** lighting concepts

- heights** of poles

- dimming** procedures

- lenses**

- different industrial products / **companies**



## **B4: MOBILE Exhibition with LED Equipment in a Truck to be Placed at Different Municipalities**

For all other solutions, decision makers from municipalities must come to Pretoria to see the installations.

With this mobile system the LED street lighting exhibition could come to those South African municipalities interested in LED street lighting and attract local engineers, local politicians and local press.





## **PART C: Recommendations for LED Street Lighting Exhibitions in South Africa**



## C1: General Recommendations

An extension of the outdoor LED Street Lighting Exhibition in South Africa is recommended, which will be a **constant, outdoor exhibition with full-scale poles, a variety of LED luminaires** and equipment, a central control system and a real street made out of asphalt.

The outdoor street lighting simulation will be as close to the real world as possible. The technology will be tested in **real weather conditions**.

In addition:

- showroom** of the LED suppliers for LED equipment

- hall** for (scientific) testing of LEDs and visit during office hours

- LED truck** for mobile presentation within South Africa

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## C2: Exchange of Experience with LED Street Lighting Exhibition in South Africa

Exchange of experience with “lessons learned” between the Berlin exhibition (LED LAUFSTEG) the South African exhibition (LED WALKWAY).

To be investigated in more detail:

„Showroom“ and/or

„Demonstration Hall“ and/or

„Mobile Truck“



## C3: Long-term Vision for a LED Street Lighting Demonstration in South Africa

Raising awareness at **municipal** level (Mayor, infrastructure departments, local engineers, local press)

Raising awareness at **national** level (DMRE, Finance, Science, ...)

Presenting latest LED technologies on **international** level (an exhibition for all southern African countries)

**Demonstration and testing** area for new LED street lighting solutions incl. control technologies

LED hall for testing, showroom for demonstrating latest LED **during day-times**

Adding to intended promotional effects additional **scientific** effects





Thanks for your attention.

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