MASDAR
ABU DHABI FUTURE ENERGY COMPANY
مصدر
شركة أبوظبي لطاقة المستقبل

# Building the Infrastructure for Masdar Zero Carbon City

*BEX, Valencia*

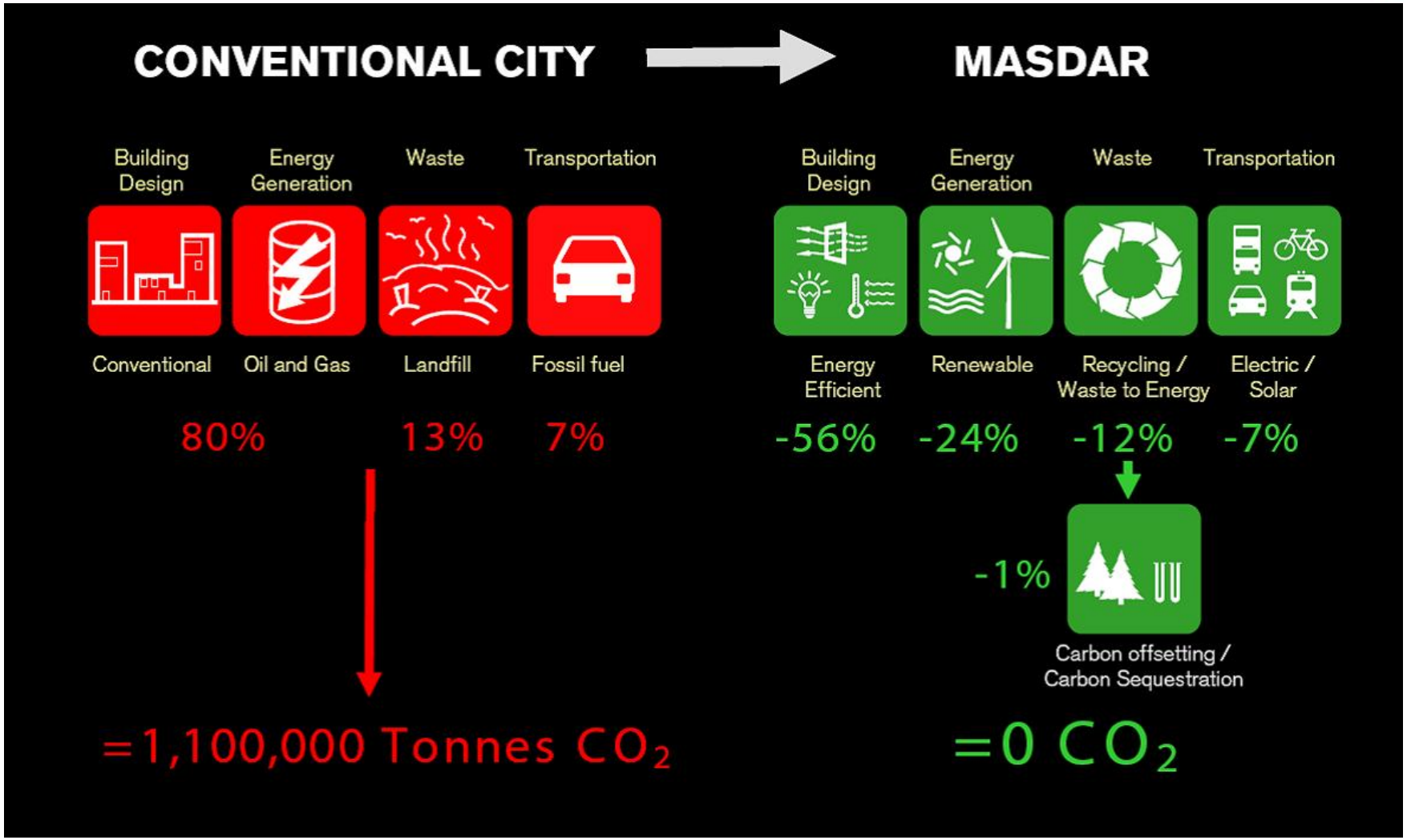
*June 23-24, 2008*

# MASDAR CITY

***A Sustainable City providing the highest quality of life with the lowest environmental footprint***

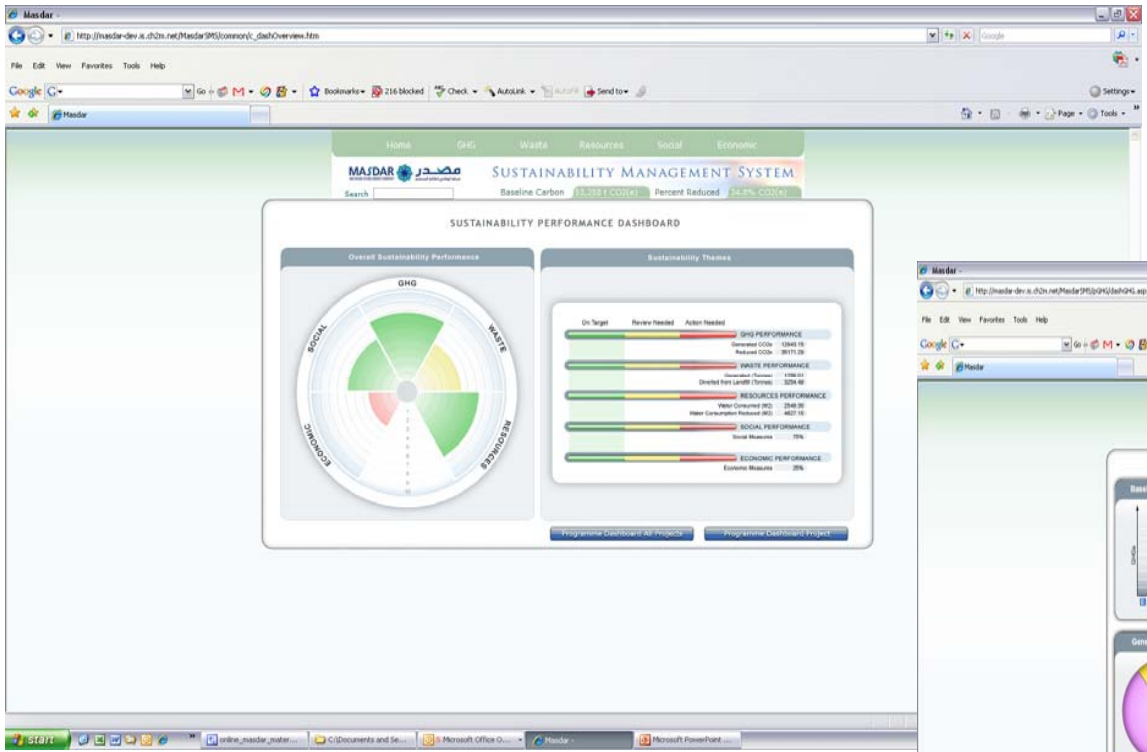
***The Journey has started***

# MASDAR City Master Plan - Achieve Zero Carbon and Zero Waste Lifestyle

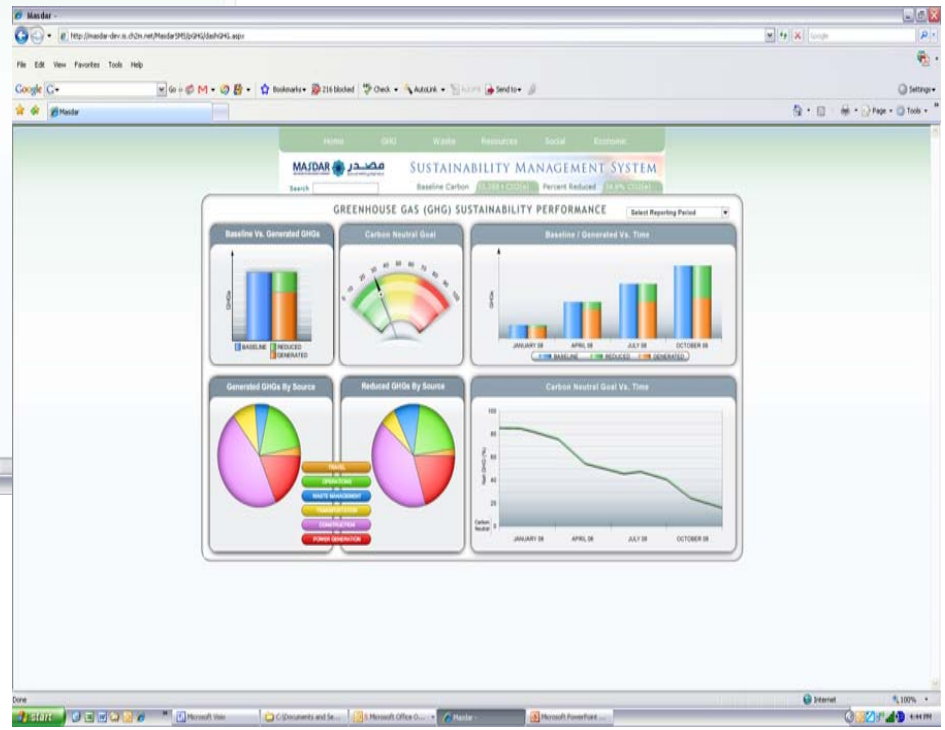


# Tracking and Monitoring Developed to Focus Our Actions and Document Our Performance

## SUSTAINABILITY MANAGEMENT SYSTEM



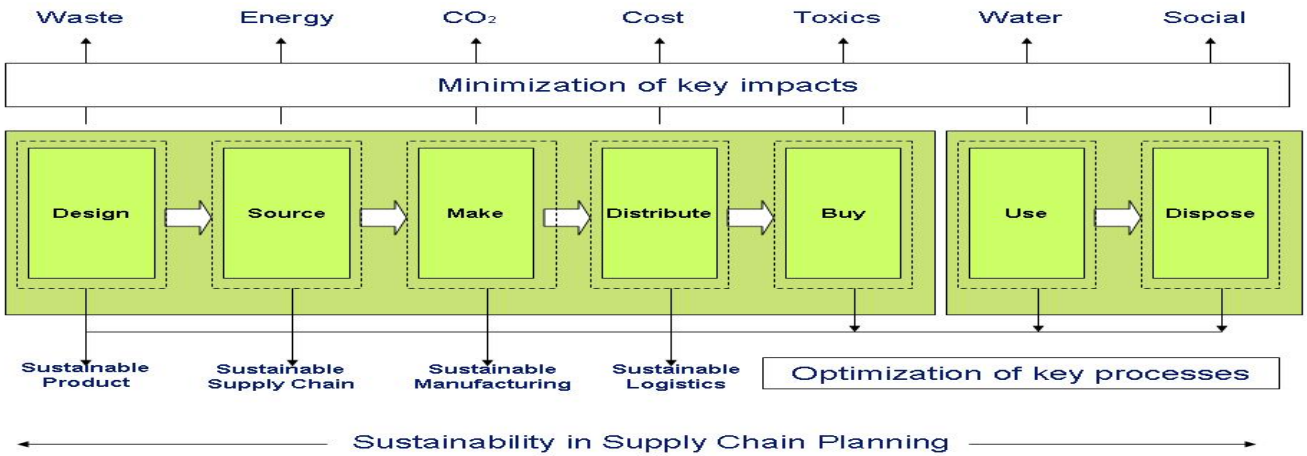

## CARBON DASHBOARD
## GHG MANAGEMENT



# Building Design and Supply Chain

Integrating the design process:

- Environmental
- Energy Use
- Capex
- Robustness
- Ease of Operation and Opex

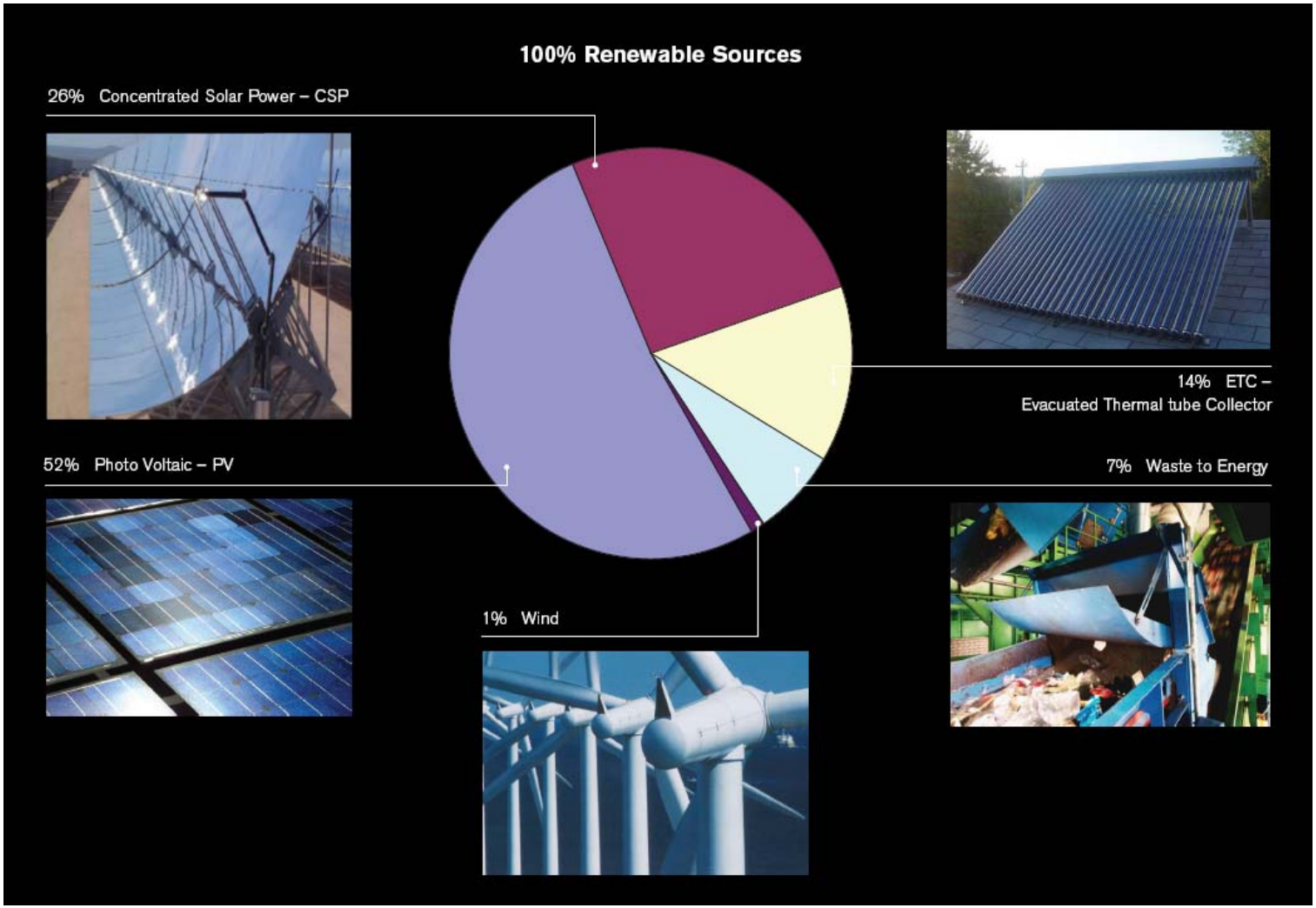



# Masdar HQ – Net Positive Energy Design

Design Features:

- Lowest energy consumer/$m^2$ for class A office building
- One of world's largest building-integrated PV arrays
- World's largest solar thermal driven cooling system
- Mixed Use – Office/Retail/ Residential

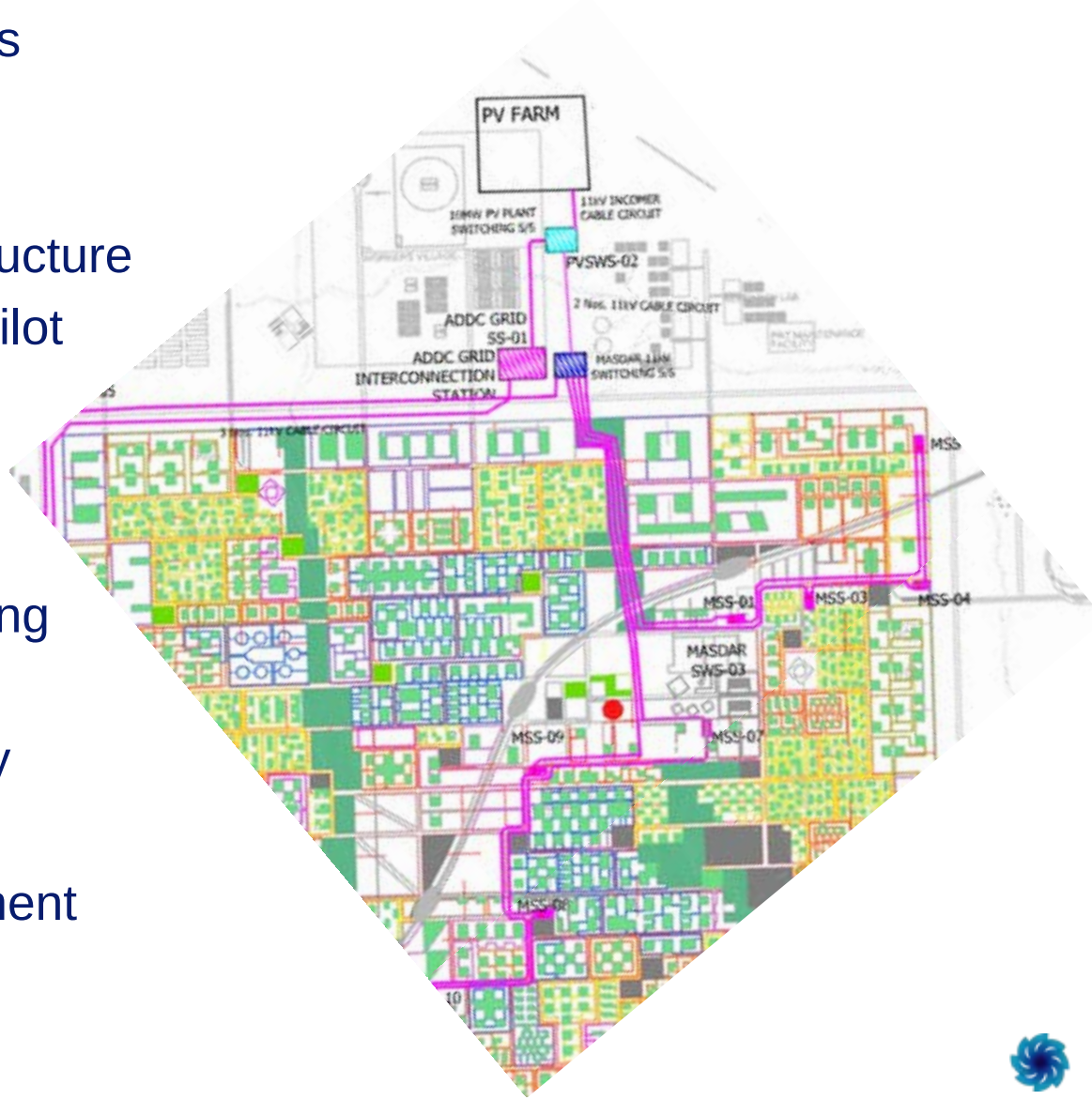
# Energy Strategy – 100% Renewable



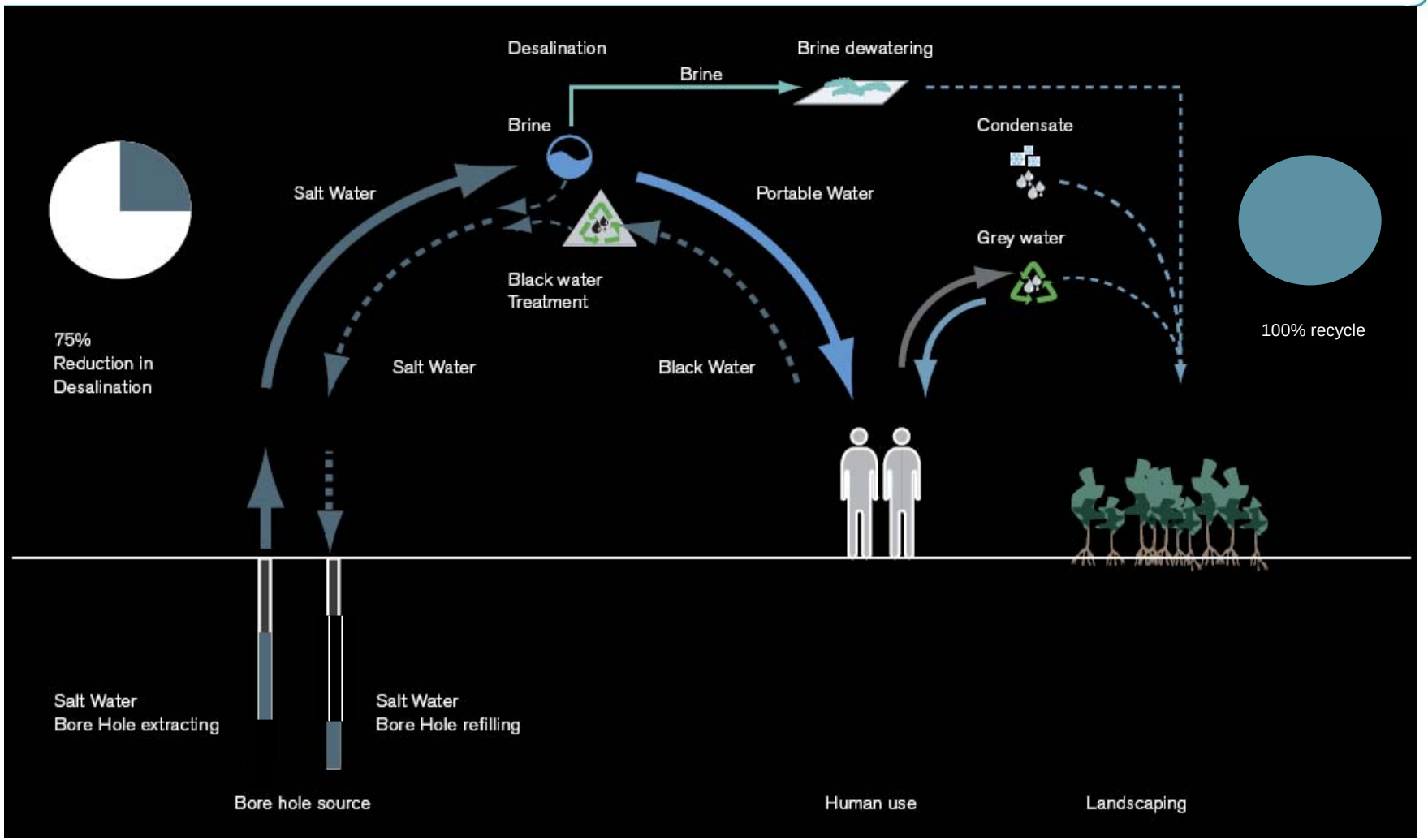

**Demand Management Critical: 30 kWh/p/day**

# Energy Implementation

- Initial Service Solutions
  - 10 MW PV Farm
  - Solar Cooling Pilot
  - PV Parking Lot Structure
  - Waste to Energy Pilot
- Permanent Solutions
  - Photovoltaics
  - Solar Thermal
  - District Solar Cooling
  - Waste to Energy
  - Biosolids to Energy
  - Wind Energy
  - Demand Management



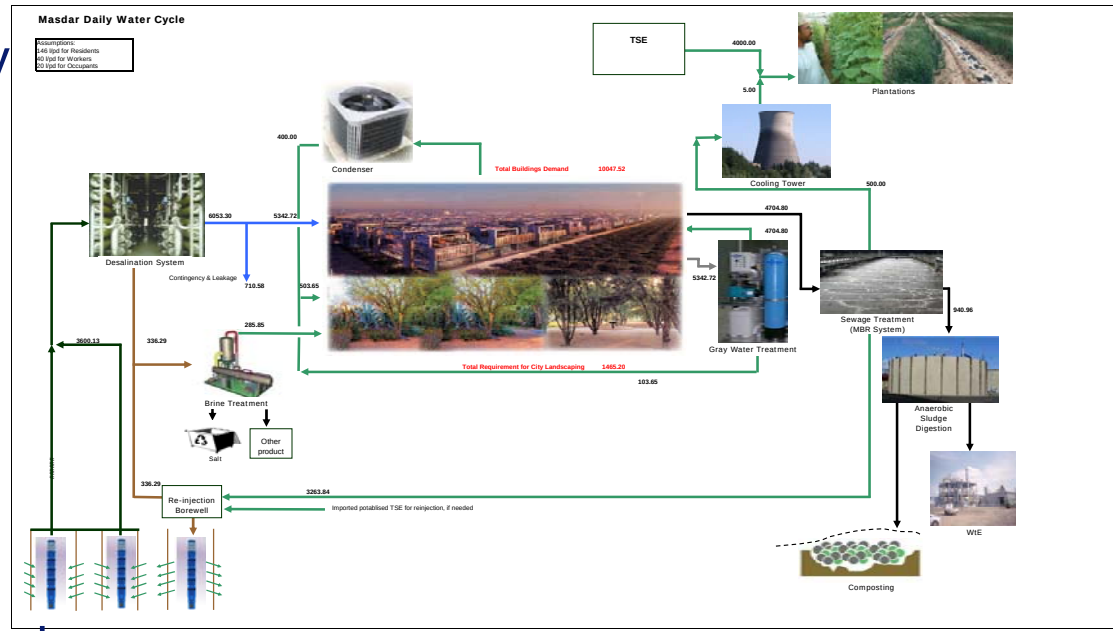
# Water Strategy – 100% Recycle



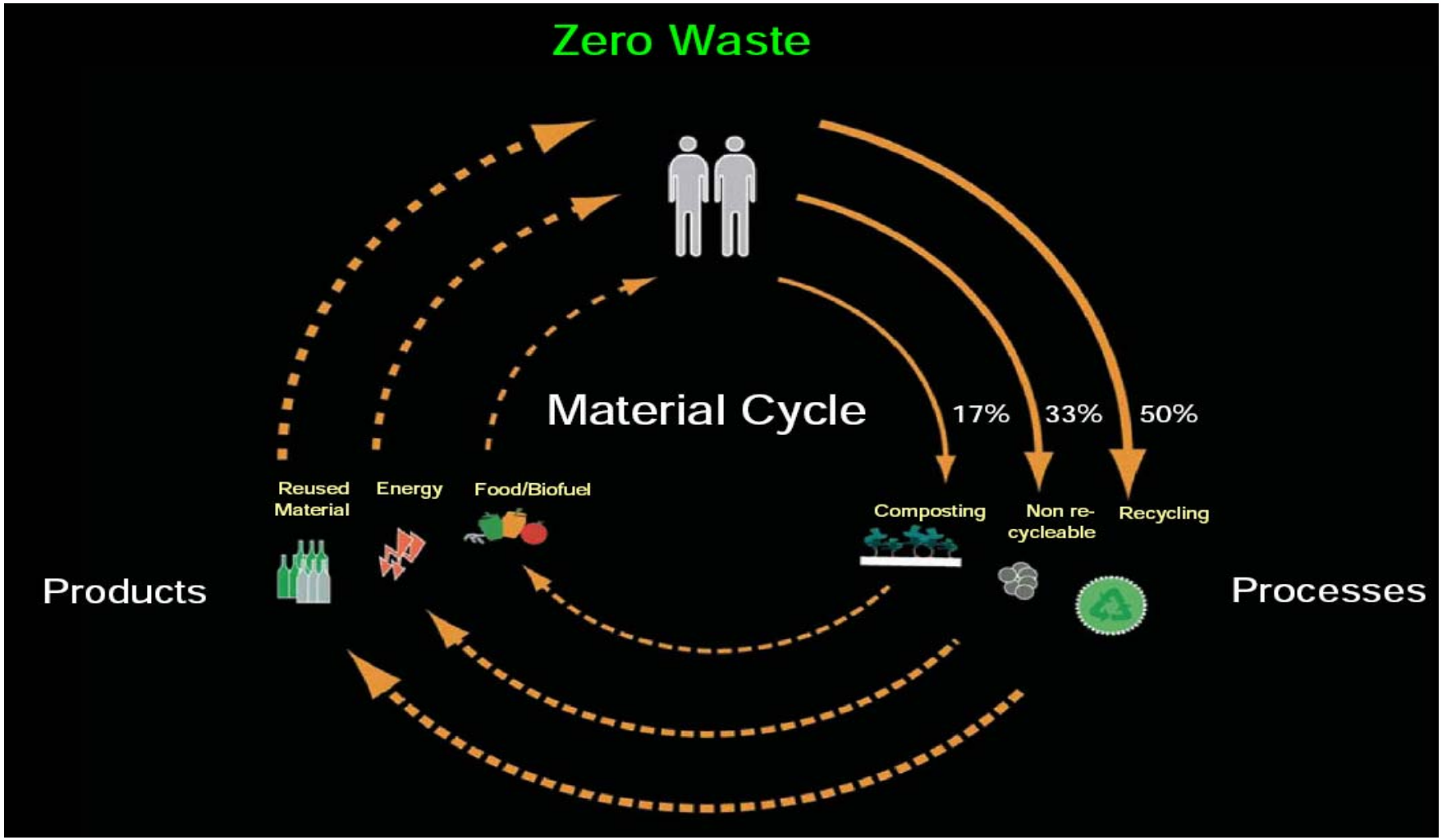

**Demand Management Critical: 80 L/p/day Desalinated**

# Water Implementation

- Initial Supply/Treatment
  - High Efficiency Membrane Desalination
  - Membrane Wastewater Treatment to High Quality
  - Innovation Hub to Demonstrate Technology Advancements
  - Local Recycling
- Permanent Solutions
  - Low Energy Desalination
  - Beneficial Use of Brine
  - Low Energy Greywater and Blackwater Systems
  - 100% Recycle



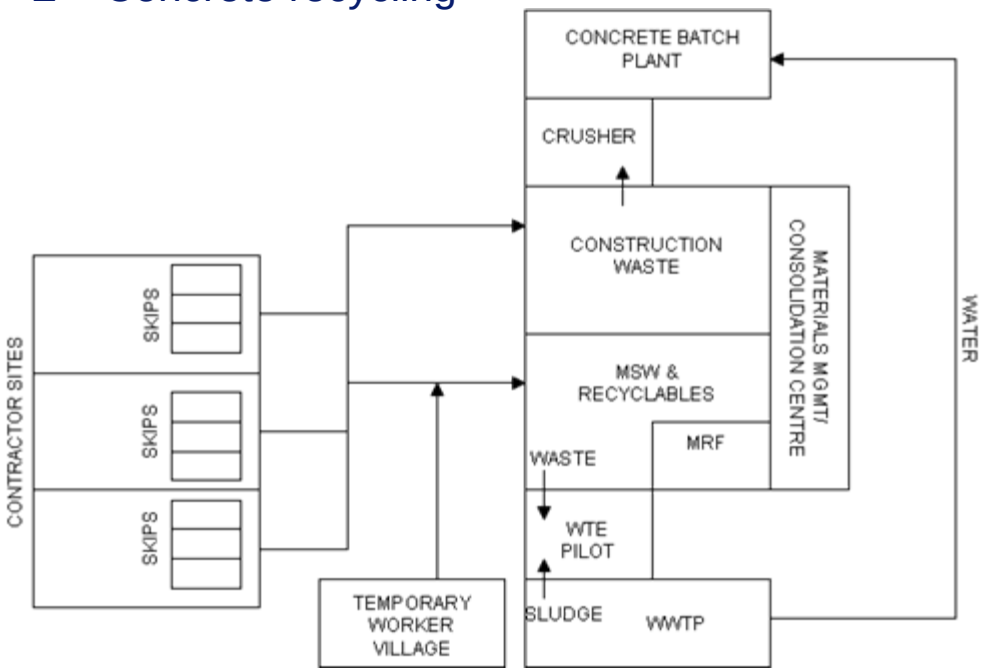
# Waste Strategy – Zero Waste Lifestyle



# Waste Implementation

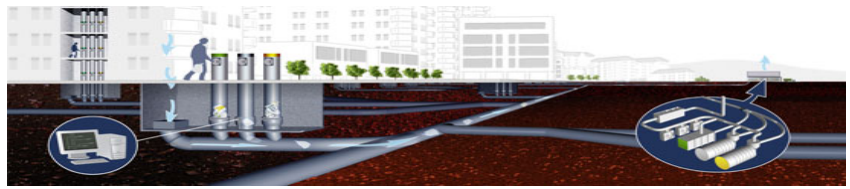
## Interim Waste Handling Facility

- Construction waste
- MSW from Worker Accommodation
- Concrete recycling




## Waste Collection Approaches

- Vacuum System
- Electric Trucks



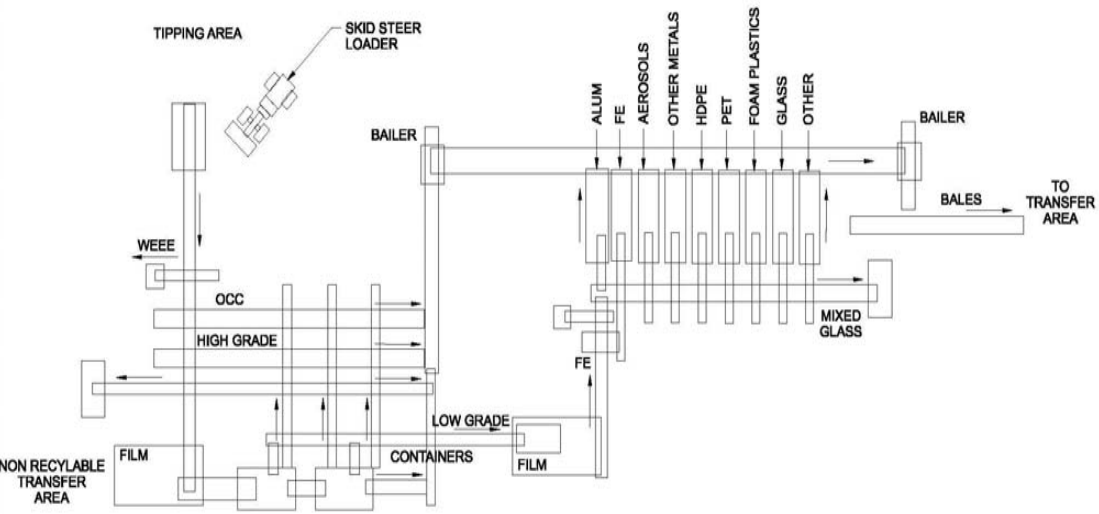
# Waste Implementation

## Permanent Waste Handling Facility

- MSW recycling
- Waste to energy

## Waste Minimization Strategy

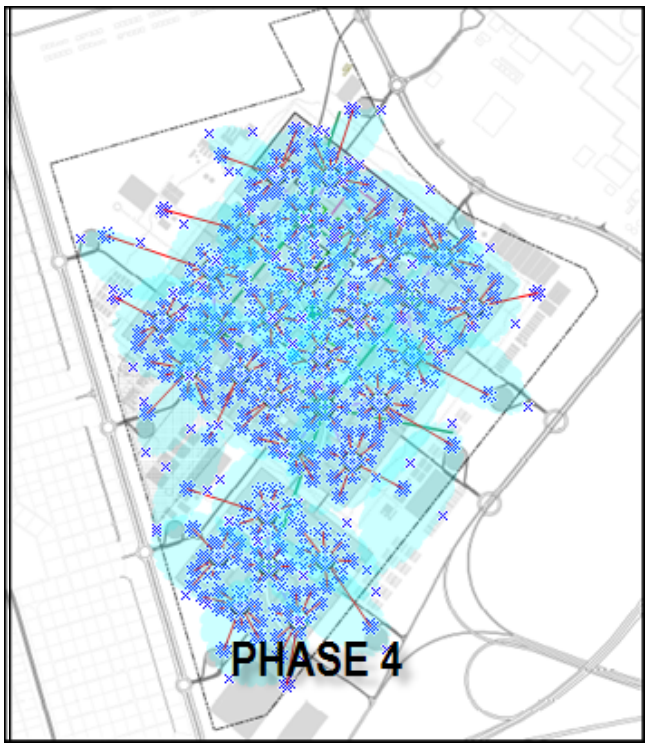
- Education & awareness
- Regulations/incentives
- Monitoring/evaluation




# ICT Strategy and Implementation

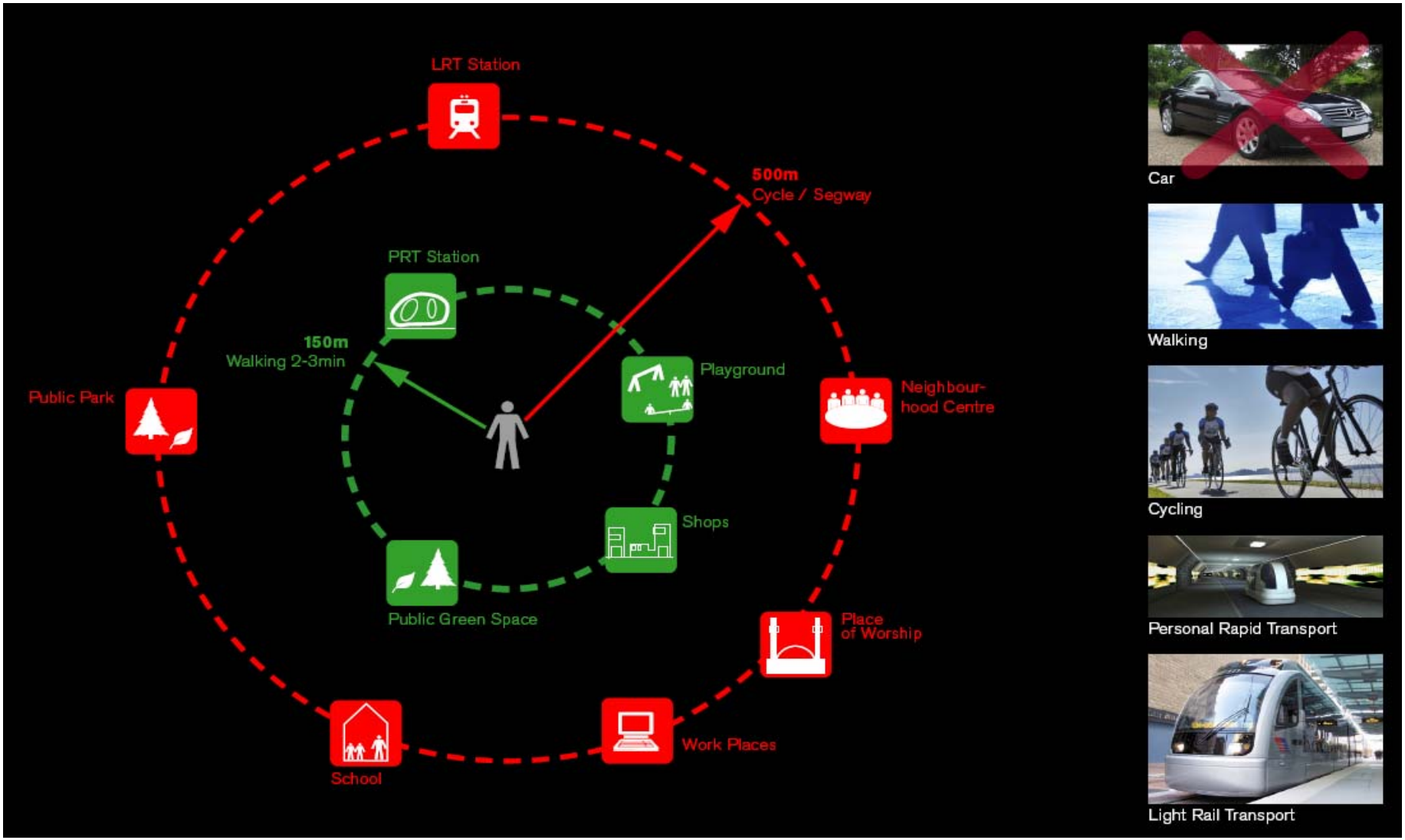
**VISION -** *"To provide unrivalled choice, value and quality of experience for all information and communication services through a single integrated infrastructure supporting current and future needs"*

**CONCEPTUAL ICT INFRASTRUCTURE TOPOLOGY**




- *Enable Sustainability goals and objectives*
- *Identify / Provide a single integrated, interoperable infrastructure supporting current and future needs*
- *"Open" Access Policy, Vendor neutral*
- *"Open" Standards Policy*
- *Ubiquitous Fibre and Wireless across the City*

# Transportation Strategy – Non Carbon System



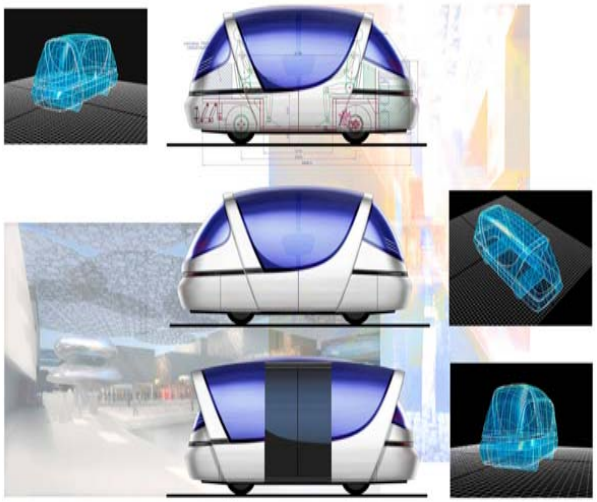
# Transportation Implementation

FULL CITY SYSTEM

- Fully Automated System, 1700 Electric PRT Vehicles and 85 Stations
- Consolidated Freight Handling Automated MRT System,

IMPLEMENTING INITIAL SYSTEM

- First phase, 13 Fully Automated PRT Vehicles, 1.7 KM of guideway,
- Selection Process Completed, Notice to Proceed Imminent
- Operational – August 2009



# Phasing

# Welcome to the Sustainable Future

# THANK YOU