MASDAR
ABU DHABI FUTURE ENERGY COMPANY

مصدر
شركة أبوظبي لطاقة المستقبل

The Carbon Neutral Masdar City

COP 14 Side-Event

CDM Reform

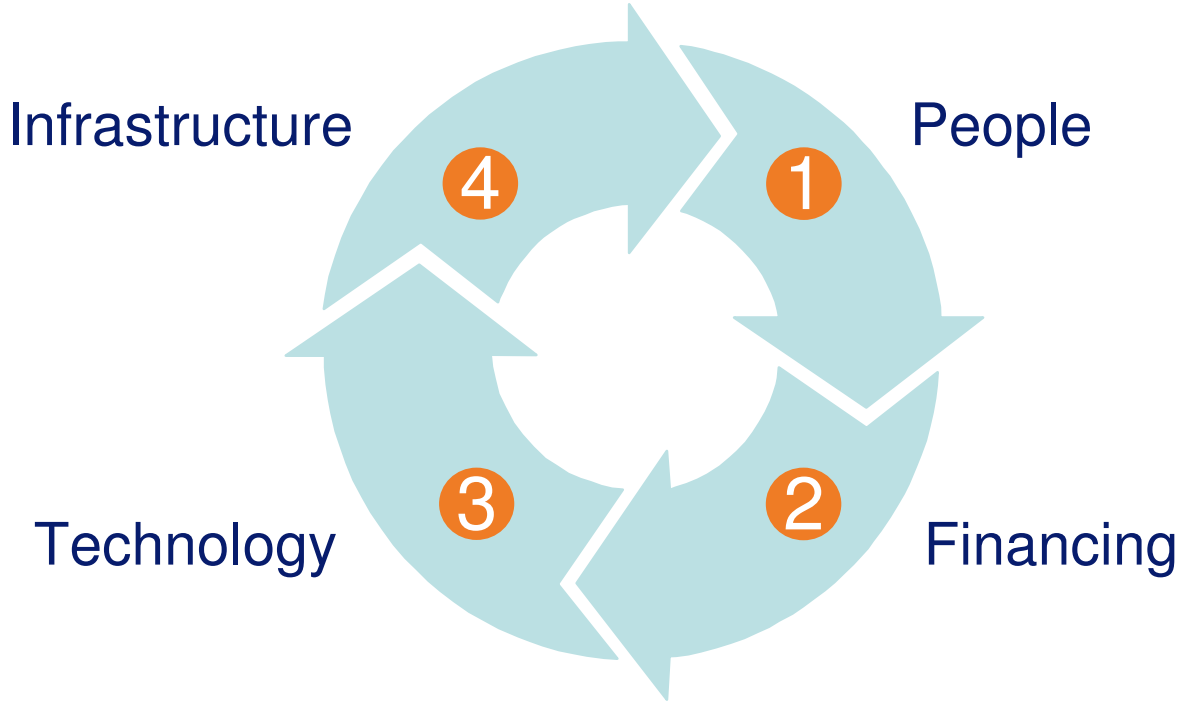
MASDAR Carbon Management Unit

4 December 2008

Masdar Overview

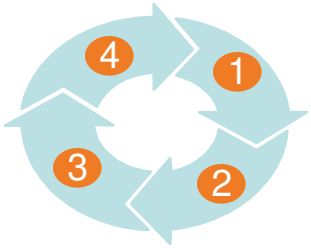
Abu Dhabi Government backed US$15 billion initiative to develop global leadership in clean technology, sustainable technology and low carbon solutions globally

The four elements of success



Successful examples: *Singapore* & *Silicon Valley*

The facets of Masdar



People 1
- Education: Masdar Institute with MIT
- Research: Masdar Research Network

Financing 2
- Government seed money
- Fund (Masdar Clean Tech Fund)
- Individual projects

Technology 3
- R&D
- Partnerships
- JVs and Acquisitions (Toresol, Winwind, Solergenix)
- Deployment (CCS; Hydrogen; CSP; PV manufacturing; CCS; CDM)

Infrastructure 4
- CCS network
- Masdar City

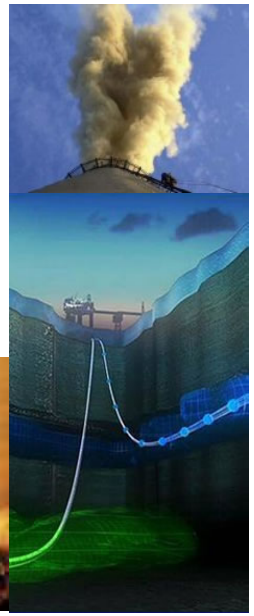
Masdar Carbon Strategy

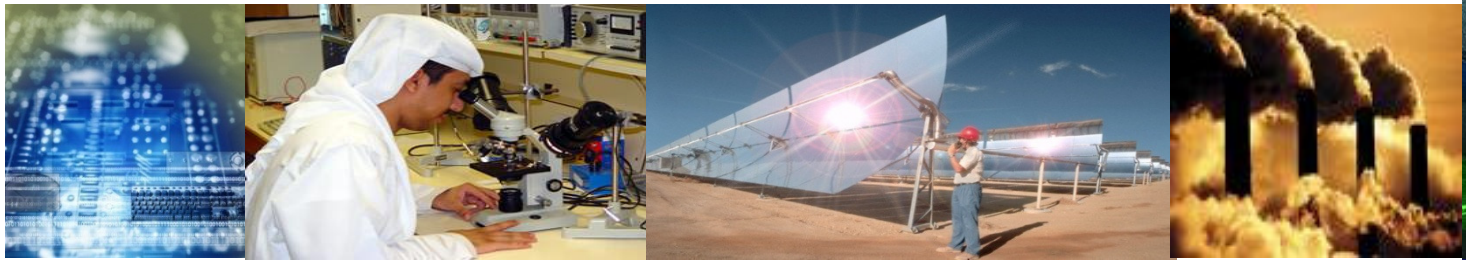
Objectives

- Drive the progress to a low carbon economy in MENA & Rest of Africa
- Become a global leader in carbon emissions reduction projects

Strategy

- Focus on target sectors: Oil & Gas, Renewable Energy and Energy Efficiency
  - Carbon Capture and storage
  - CDM projects
- Leverage Abu Dhabi's competitive advantage to lead regional markets
- Establish partnerships with leading carbon players (Carbon Fund or JV)





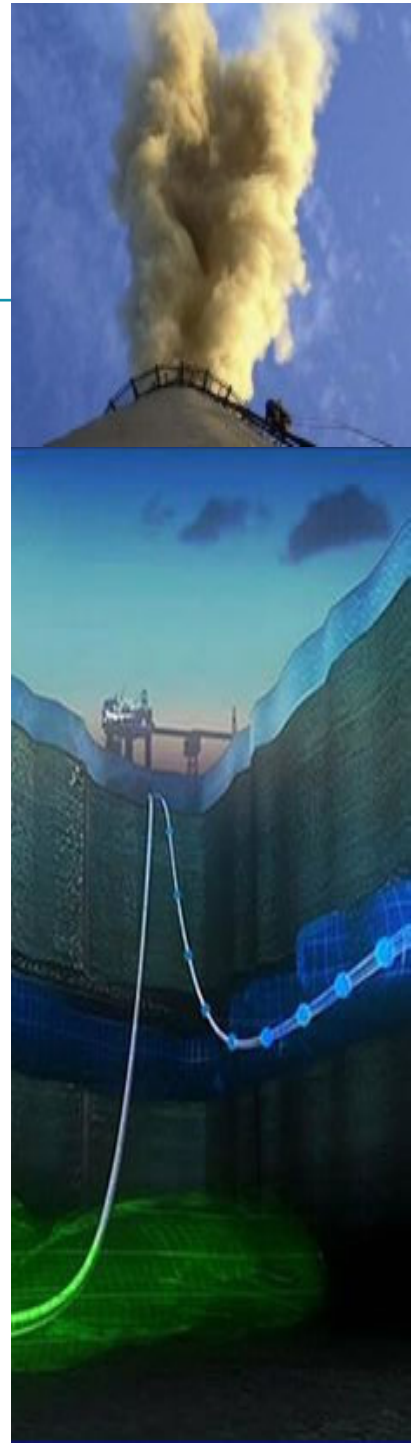
The Carbon Capture & Storage Network

The Project – started in Abu Dhabi in 2007

- National network of CO2 capture for EOR in oil reservoirs
- CO2 captured from flues gas from power generation and industrial facilities
- Largest project of its type and first initiative at country level
- Extensive feasibility study completed in Jan 2008
- First project in FEED awarded to Mustang fall 2008

Objective by 2020

- Reduce around 25 million Tons of CO2 from Abu Dhabi's atmosphere



Masdar's CDM Project Portfolio

- Recovery and utilization of flare waste gases
- Fuel switch in industrial facilities
- Energy efficiency improvements
- Waste heat recovery
- CO2 recovery
- Leak reduction in compressors and valve stations
- Renewable energy (wind, solar)
- Carbon Neutral – Masdar City

Flare gas reduction and recovery project	Flare gas reduction and recovery project	CO_2 recovery from flue gas	Low pressure gas network rehabilitation	Flue gas recovery for ammonia production
Recovery of excess fuel gas in train 1 & 2	Recovery of Carbonate and DEA flash gases	Flare gas reduction and recovery project	Waste Heat Recovery	100 MW Concentrated Solar Power plant at MASDAR City

Masdar City

To build the first truly sustainable city where residents and commuters can live the highest quality of life with the lowest environmental footprint

Layering of the City

Buildings

Pedestrian level

Services

Personal Rapid Transport

Main Infrastructure

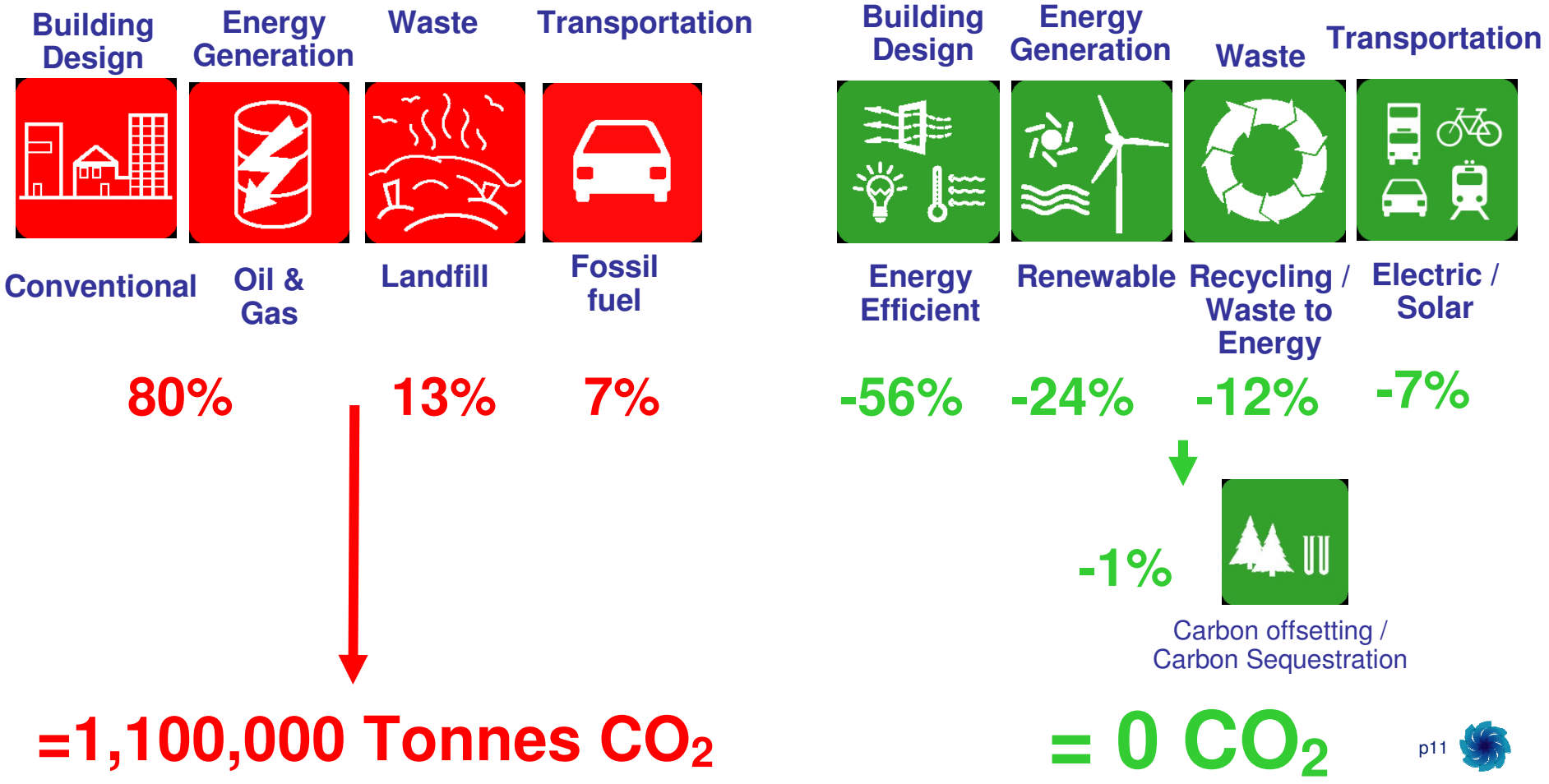
Carbon Management at Masdar City – Construction

Embodied carbon

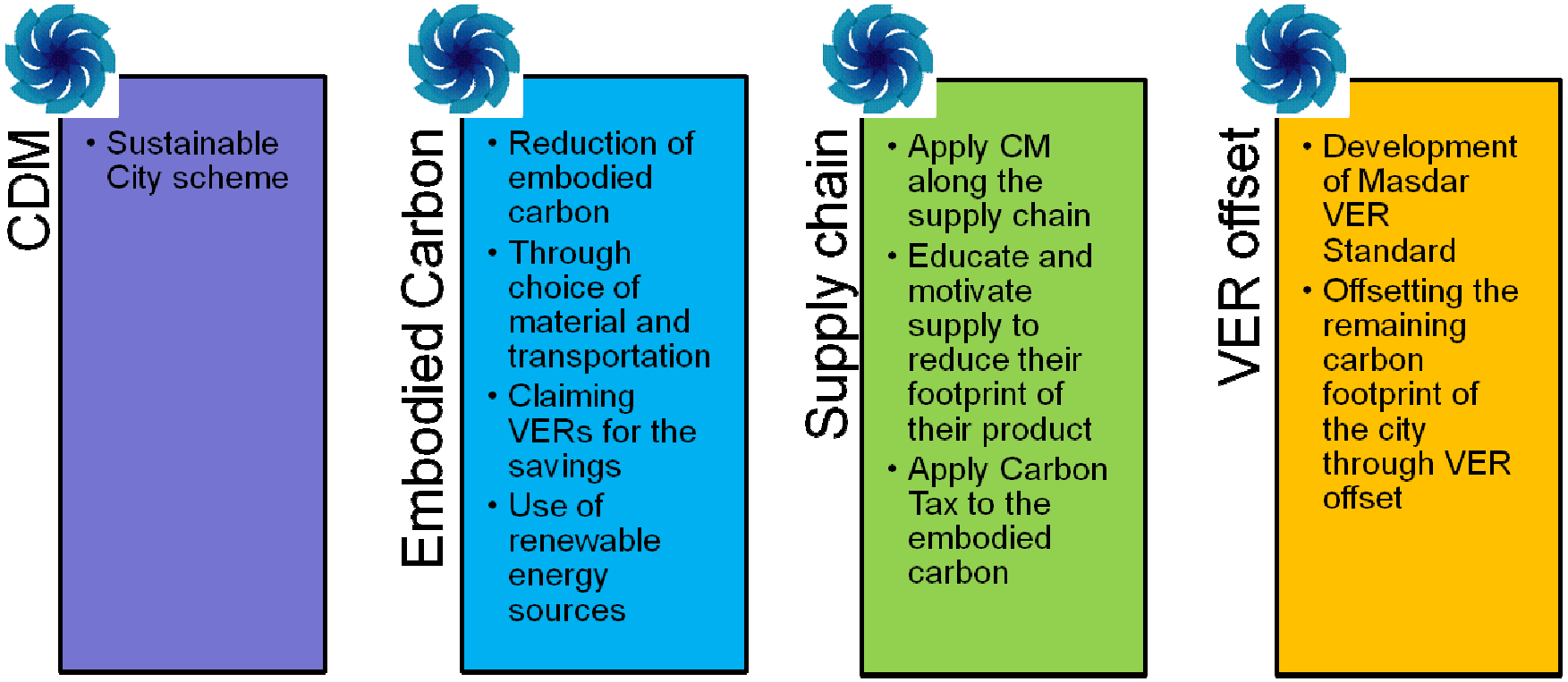
- Determine the carbon footprint of the city, including material, transportation, energy, traveling, accommodation
- Reduction of the carbon footprint as much as possible
- Carbon Management along the Supply Chain

Carbon Management at Masdar City – Operation

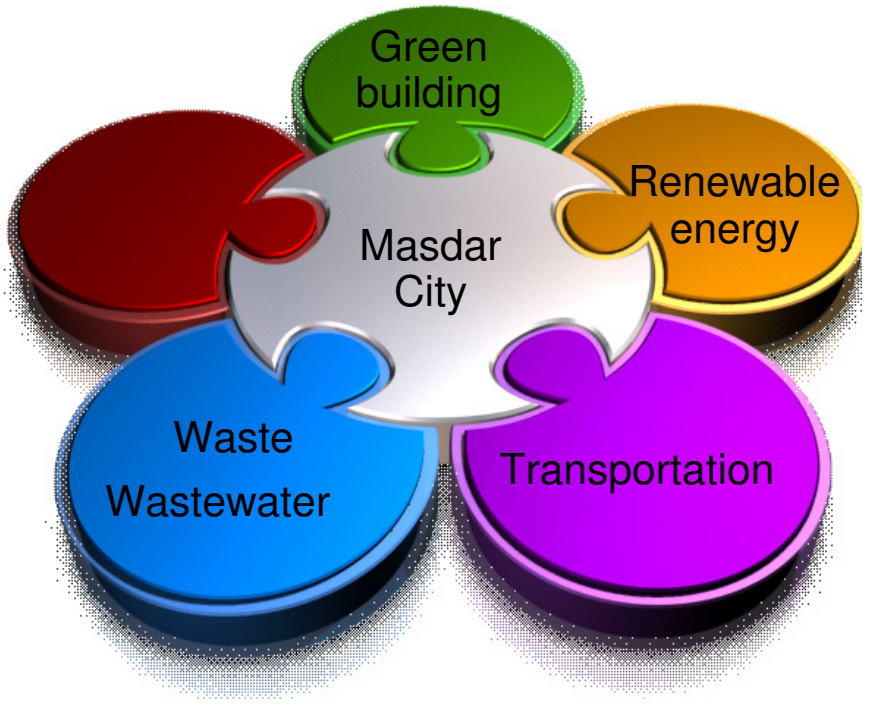
Conventional City → MASDAR City



Carbon Management at Masdar City



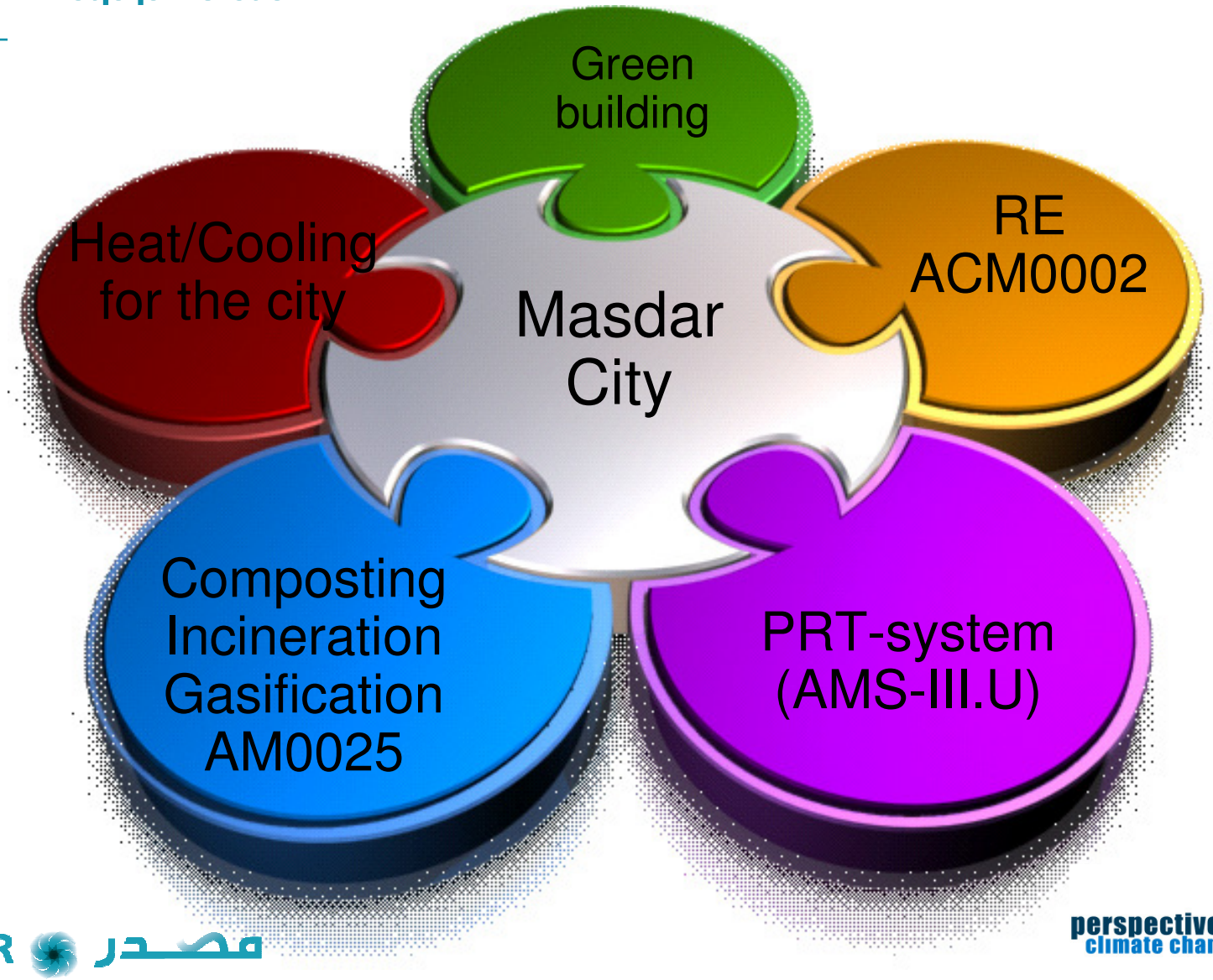
CDM approach and challeng



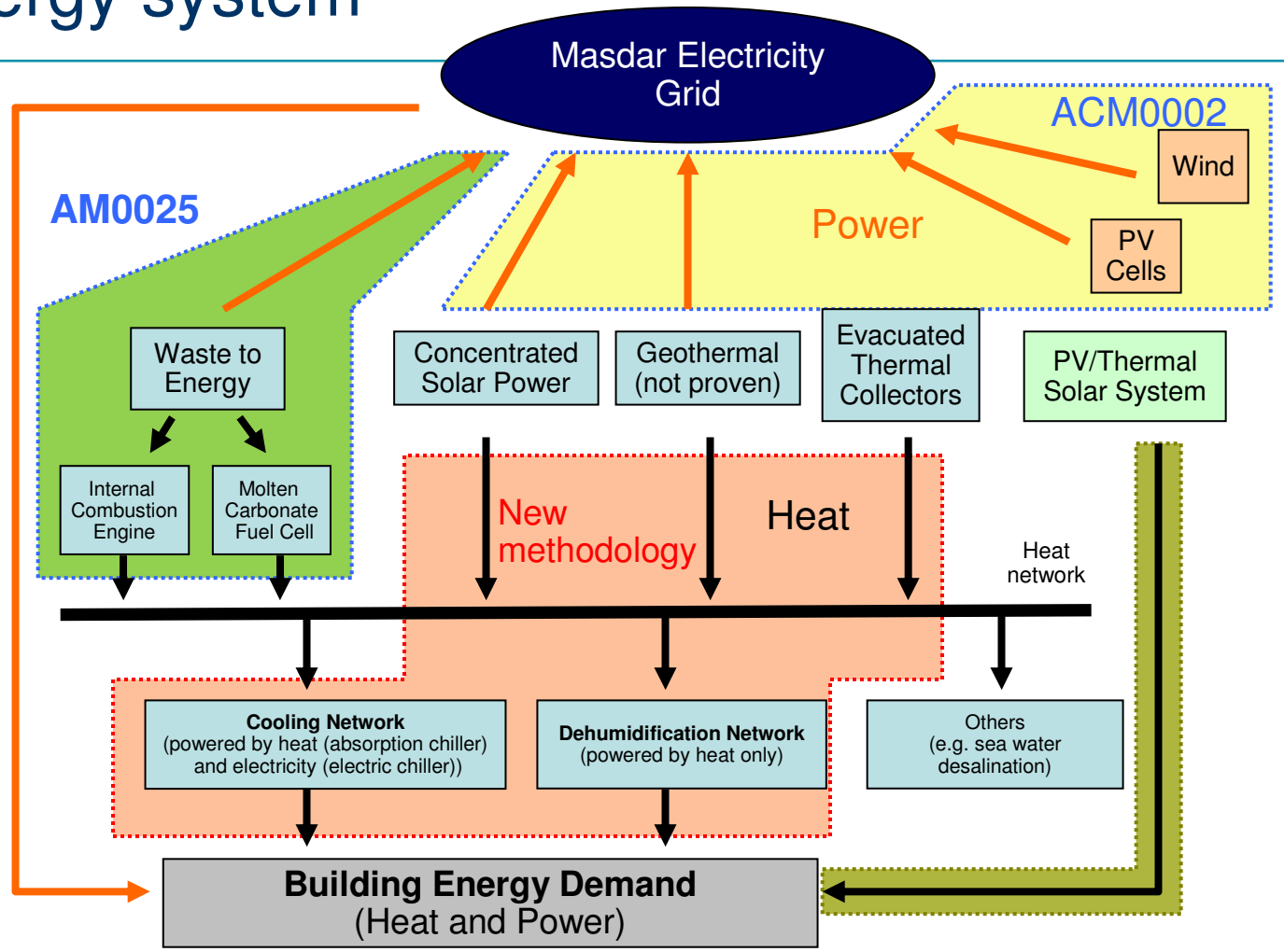
- Vision: to establish a guideline for sustainable cities within one methodology

- Challenges of a single methodology:
- Danger of a “black box”
- Implementation of new topics (building energy efficiency)
- Inflexible for future applications
- High complexity
- Incorporation of hard and soft measures

CDM approach



Methodological coverage of the Masdar City energy system



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perspectives climate change

Transportation – PRT -system

- **No cars within Masdar City**
- **Parking lots at the borders of the city**
- **Personal Rapid Transit system (rail with personalized cabins) inside the city**
- **Similar system for the transport of goods and waste disposal**
- **Good link to planned light rail and metro system**

Approach: Following the already approved methodology in this sector with request for revision (e.g. cable car meth for small scale project activities) AMS-III.U

Personal Rapid Transport (PRT)

Green building approach

Hard measures:

- **Indoor:** efficient equipment; good insulation; shading external walls and roofs; natural lighting by courtyard
- **Outdoor:** street and building orientation in relation to prevailing winds and sun paths; limited street length to reduce external wind impact; minimized solar absorption

Soft measures:

Change of set point to >24 ° C instead of 22 ° C; intelligent metering with saving incentives

Approach: benchmark or sample building group will be applied taking into account: building category, location, size, vintage, efficiency + other conditions such as climate, economy, occupancy characteristics, etc.

Our approach

1- Use approved meth as much as possible

2- Seek revision of methodologies, if possible

3- Develop new methodologies

4- Bring them together

- as bundled projects
- for future developments as:

Sustainable City Greenhouse Gas Reduction Scheme

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Thank you

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