NM0328: MASDAR Experience



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Why we proposed NM0328

- Buildings/residential sector is major energy consuming and there was a need to look into this sector to mitigate the climate change
- Masdar started integrated approach for energy efficient living which includes all the sector:
 - Energy efficient building Architecture
 - Energy consumption in the utilities supplying heating/cooling in the building (Chillers/heaters)
 - Efficient transportation
 - Efficient water and waste management
 - Green Energy Source
 - Human resources & Financial tools for Sustainable development



Why we proposed NM0328

To promote sustainable living Masdar proposed the methodology with the help of Perspective. The main motive for that was

- To promote the low carbon/sustainable city development
- To help project promoters to claim revenue from CDM for the additional investment in energy efficient aspects.



Buildings Code: MEDG*

Building System

Envelope

HVAC

DHW

Power

Lighting

Other

Design Options

Prescriptive Option

Mandatory

Provisions

(required for both

compliance options)

Model-Based Option

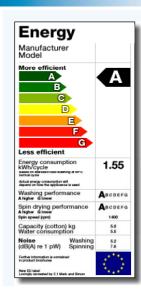
Proposed ≤ Mandatory + Prescriptive MEDG*
Compliance

* Masdar Energy Design Guidelines

Buildings non-cooling load

How best to control end-use habits/profile?

- Only high efficient light sources (at least 80 lm/W)
- Installed light capacities below 10 W/m² with integrated daylight control, shut off above 400 Lux
- Mostly thin client laptop computers with LCD screens
- Low-power server equipment ("green data centers")
- Highly efficient appliances (A+++)
- Smart appliances (pilot project with GE)
- Biogas cookers under evaluation
- Dish washers & washing machines to be connected to central hot water system
- Demand controlled ventilation

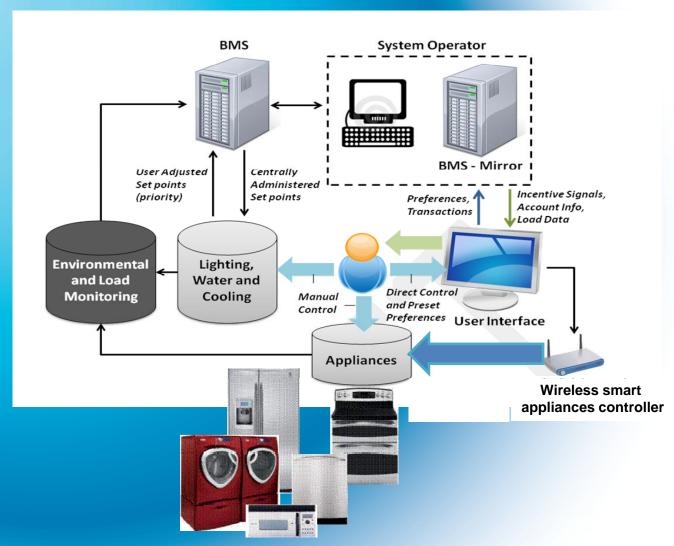


The energy ratings

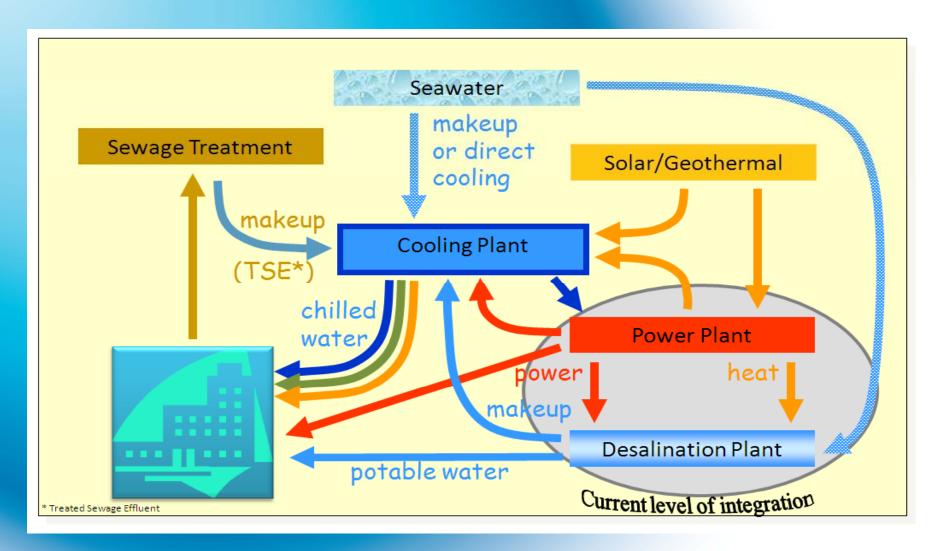
'A' is the most efficient, 'G' the least. The only exceptions are refrigeration products which now go up to A++.

Remember, the more energy efficient an appliance is, the more money you can save – and the more you help the environment. By buying a more efficient model, you're not compromising when it comes to performance either.

Smart Appliances



Utilities Integration



Energy Model

- A city-wide dynamic model is composed of several specialized modules (buildings, people behavior, district cooling, supply, distribution, etc)
- The model will primarily simulate energy flow but could be later extended to include water, wastewater, transportation, etc
- The model will be used
 - As a decision support tool during design/construction of the city to optimize utilities integration and minimize supply/demand gap (generate "what-if" scenarios and select the alternative which optimizes energy/cost/carbon)
 - As an operational tool after construction of the city: forecasting, detection/diagnosis, predictive control

Main Issues – Part 1

Baseline

- What should be the Benchmark/Baseline
- » Government data/Benchmark
- » Survey on similar type of buildings
- » International benchmarks etc
 - Building Classification
- » How to classify the buildings / building units
- » How to get the similar climate/socio economic classification
 - Data for Baseline building units
- » From where to get the data on the age of building and energy consultation
- » Credibility of the data



Main issues – Part 2

Additionality

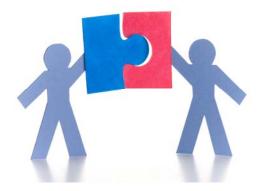
- How to demonstrate ??
 - Only emission additionality or financial/technical as well
 - Application of tool or proposing new tool
 - An integrated approach or discrete technologywise demonstration
 - Impact on the similar projects in the host country/region
 - Data/cost involved in the demonstration of additionality



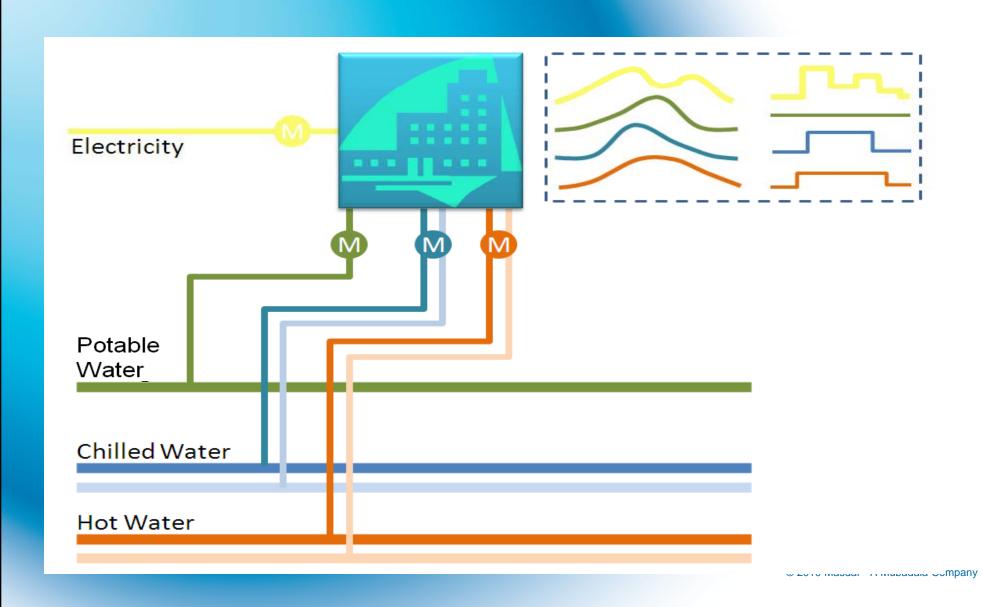
Main issues – Part 3

Monitoring

- What all parameters to be monitored Is area monitoring required in the crediting period
- Frequency on monitoring baseline building units
- What if some one refuses to give the permission of data in next monitoring
- Cost of monitoring
- Is it worth to go for CDM??? Cost vs Benefit



Demand Metering



Application of Methodology

- Replicability
- Cost of monitoring and CER issuance
- As PoA
- Initial step for NAMA/Sectoral Benchmark
- Limitation for using in village based housing?

