BUILDINGS OF THE FUTURE

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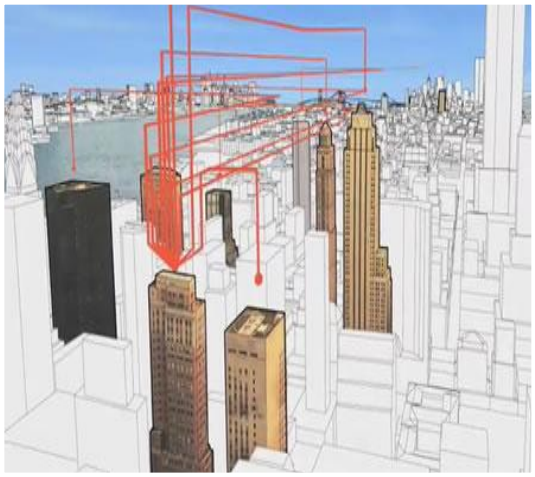
Outline

- Buildings - evolution process
- Trends and Challenges
- New concepts
- Buildings of the future?



PAST

PRESENT

FUTURE

EVOLUTION PROCESS

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Buildings - evolution process

Man adaptability…

From early stages, the man has shown great adapatability to different type of climate, from the polar to equatorial one, by means of simple efficient solutions corresponding to specific type of climate and other conditions

Inteligente Design

Buildings can be designed in order to assure a confortable environment for a wide range of climate conditions.

Buildings - evolution process

In Portugal, the tradicional arquitecture and design were often able to answer properly to comfort and sustainability demand

TRENDS…

URBAN CONCENTRATION

GLOBALIZATION-
FINANCIAL CRISIS

GROWING ENERGY
DEMANDS

CLIMATE CHANGE

INCREASING SCARCITY OF
NATURAL RESOURCES

CHALLENGES

NEW MATERIALS

ADVANCED SYSTEMS AND TECHCNOLOGIES

ENERGY EFFICIENCY

RES INTEGRATION AND UTILIZATION

ENERGY STORAGE TECHNOLOGIES

INTELIGENT GRIDS

MARKET EFFICIENCY

REGULATION, INCETIVES

DECISION MAKERS
legal mechanisms

CONCEPTS

CIENTIFIC COMMUNITY
technological innovation

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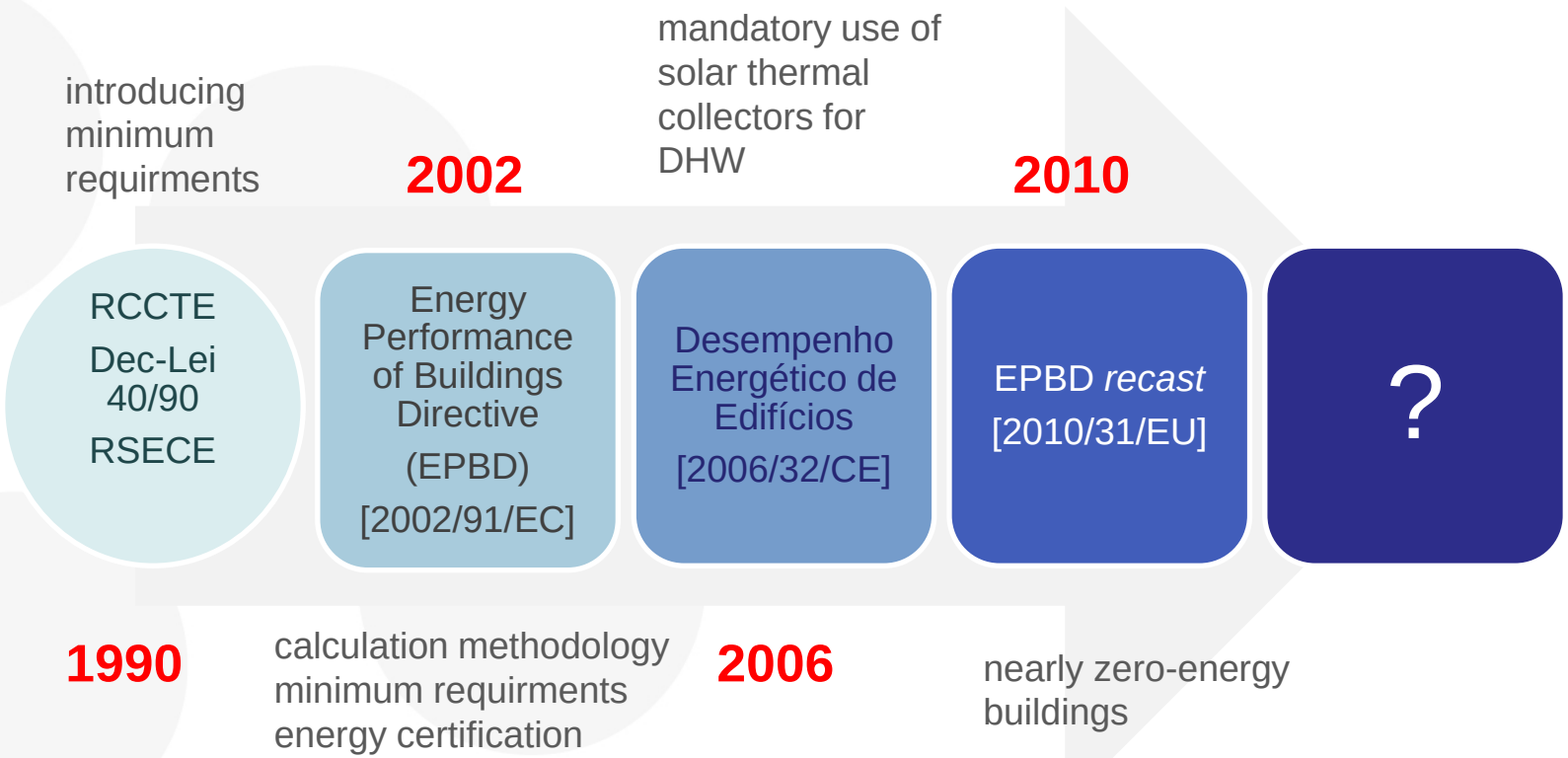
Measures and strategic plans

European Strategic Energy Technology Plan

Green paper on security of supply

legal mechanisms



1. Minimize the energy demands	• **Materials, advanced efficient systems and technologies integrated in building façade**
2. Rational energy use	• **Efficient lighting, efficient heating and cooling systems** • **Energy storage**
3. Utilization of renewables energies	• **Solar thermal collectors** • **Photovolatic systems** • **Wind energy** • **….**

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Autonomous building
1930-1950

Dymaxion House

Solar House
1930-1940

House of tomorrow

Modern history

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Passive House
1990

Nearly-Zero Energy Building
2006

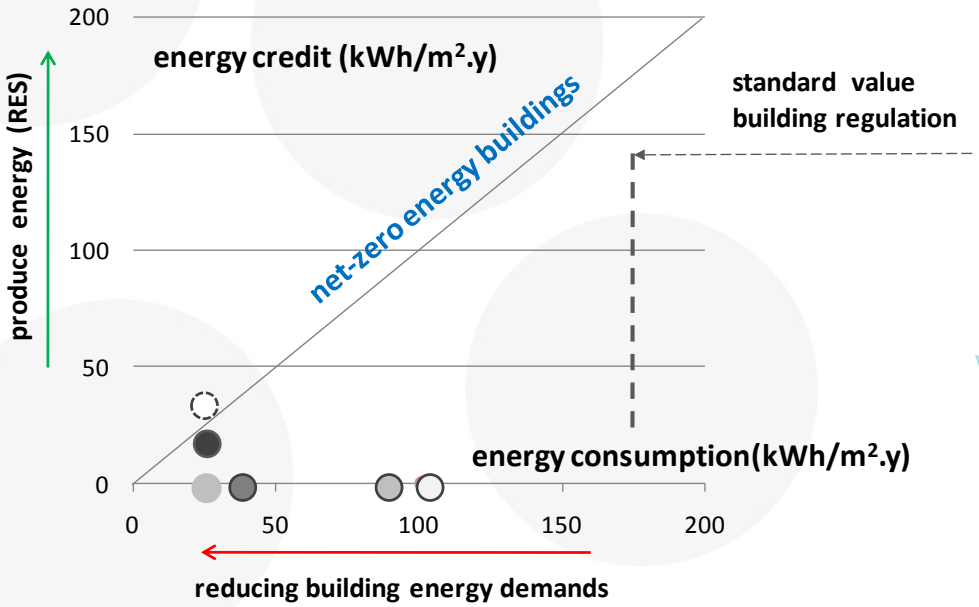
SOLAR XXI

Net-Zero Energy Building
2009

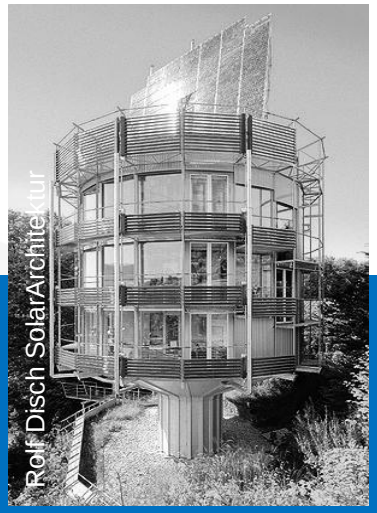
Elithis Tower

Contemporary developments

SOLAR XXI
1º edifício Towards NZEB in Portugal



- Building in accordance with actual building code+typical building related loads
- Improved standard + Typical building related loads
- Use of efficiency measures (passive techniques and strategies)
- Use of renewable energies
- Feed-in credit
- Feed-in credit (estimated in 2011)



Plus Energy Building

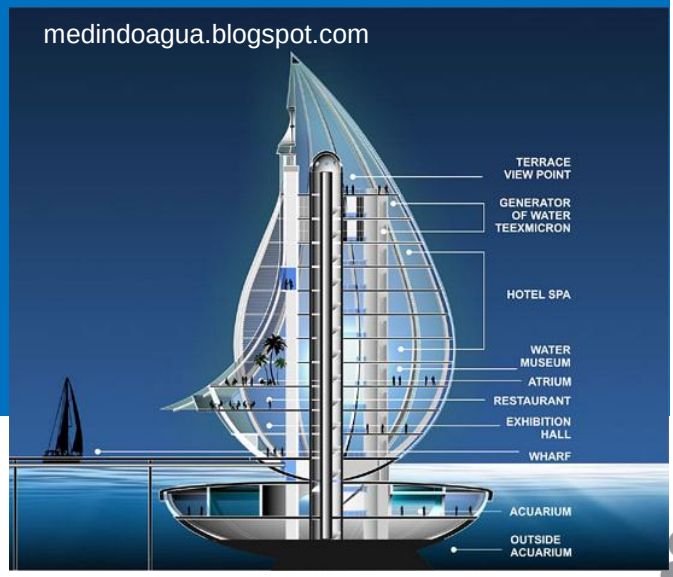
Heliotrope

……

56 story air filter

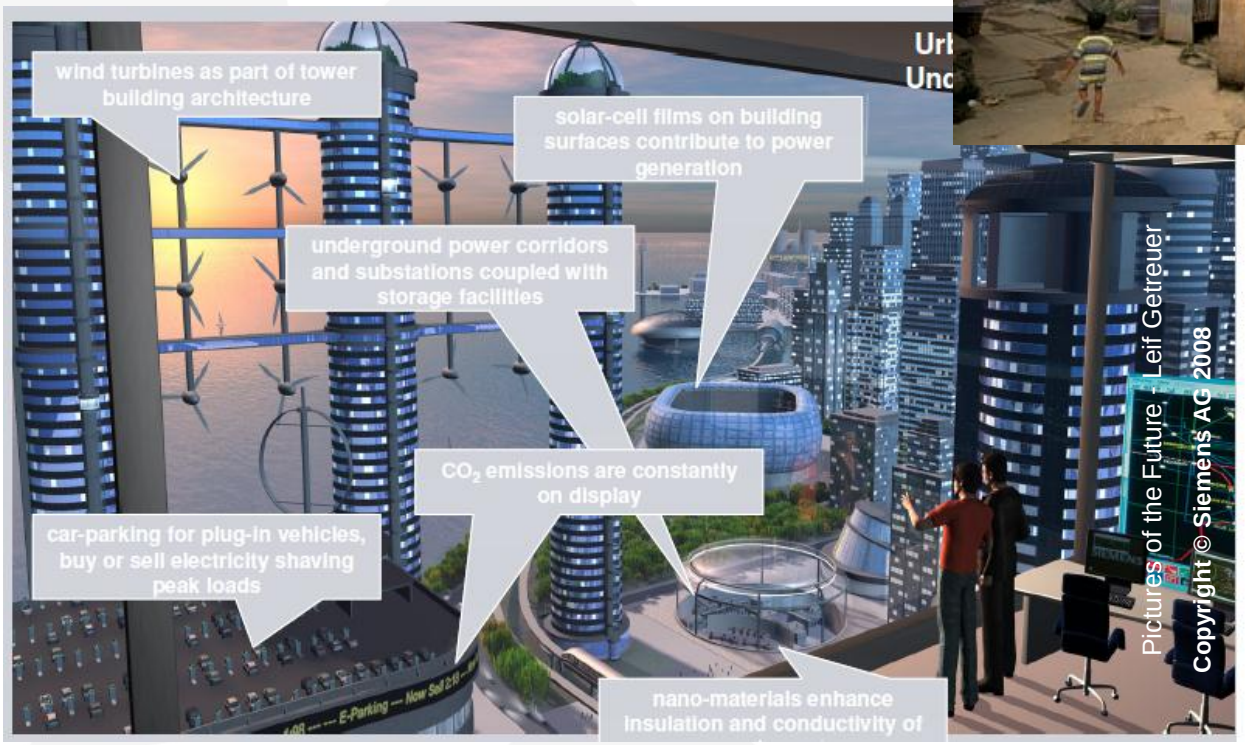
One Bryant Park

Water Building Resort



Future developments ?

Buildings of the Future?



As Yoda always likes to say:
Always in motion the future is

Thank you

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