The Second International Conference on Bioenvironment, Biodiversity and Renewable Energies BIONATURE 2011

May 22-27, 2011 - Venice/Mestre, Italy

European Union Emission Trading System

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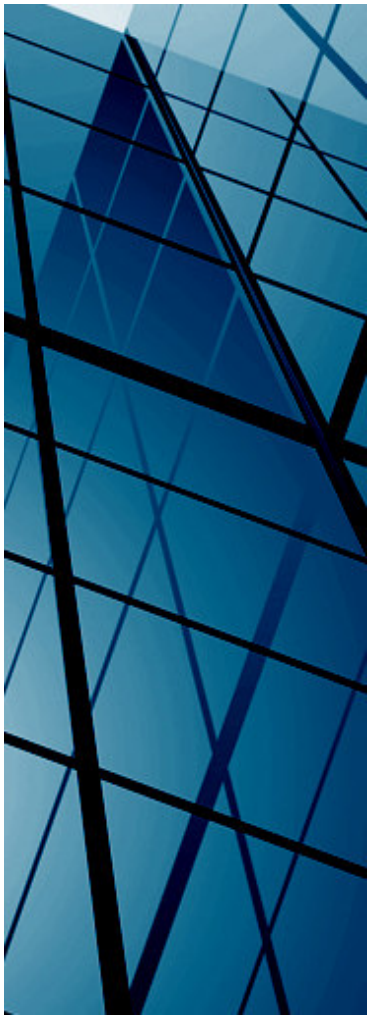
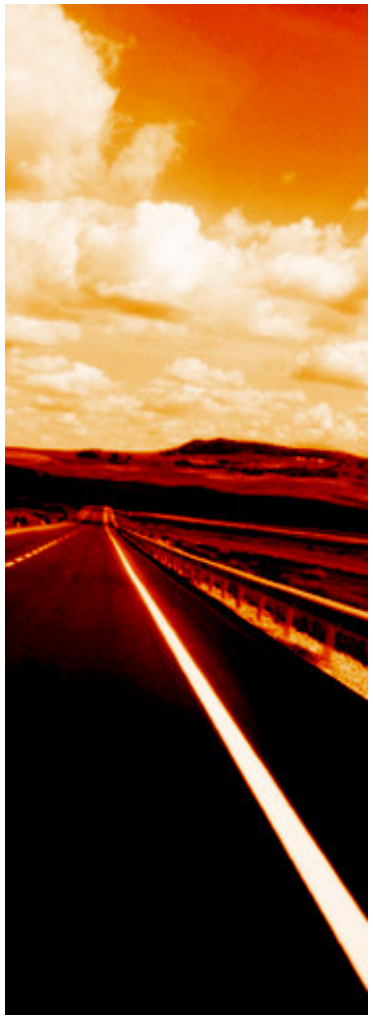
The EU-Emissions Trading Scheme: Status

- EU ETS is a market-based mechanism to incentivise reduction of greenhouse gas emissions
- The EU ETS is based on the "cap and trade" principle.
- Allocation processes: National allocations Plans (NAP) and auctions
- EU ETS periods:
  - Trial period (2005-2007): Covers 50% of all CO_2 emissions (aprox. 40% of total annual GHG emissions) and industries related to combustion and process emissions from electricity generation and selected industries, 95% of allowances must be allocated freely, 5% can be auctioned, penalties 40 euros per ton of CO_2
  - Kyoto Commitment Period (2008-2012). Cap 13% below first period, 90% of allowances must be allocated freely, 10% can be auctioned, penalties 100 euros per ton of CO_2. Airlines will join the squeme 2012.
  - Third period (2013-2020). A single EU-wide cap on emissions allowances will apply from 2013 and will be cut annually. In 2020 emissions will be 21% lower than in 2005. Sector and gases covered by EU-ETS will be expanded. At least 50% allowances are expected to be auctioned.

The EU-Emissions Trading Scheme: Vision

- The cost of controllling emissions
- Distribution of allowances: Harmonization
- Free allocation: perverse effect of providing more free allocation to the highest emitting instalation.
- Benchmarks for free allocation
- Uses of the Goverment revenue obtained by auctioning
- Adjustement of allowances: If too many allowances are issued there would be no scarcity so no market would develop
- Long-term certainty for investment planning
- Allowances price volatily can be dampened by incluiding allowances banking and borrowing.
- Carbon taxes vs EU ETS
- Sectors not covered by the EU ETS especially transportation and buildings
- Intensitive energy industries. Potentially damage competitiveness and jobs of countries
- The effect of EU-ETS on electricity prices


IARIA ENERGY2011 CONFERENCE, VENICE 22-27 MAY 2011

PANEL DISCUSSION

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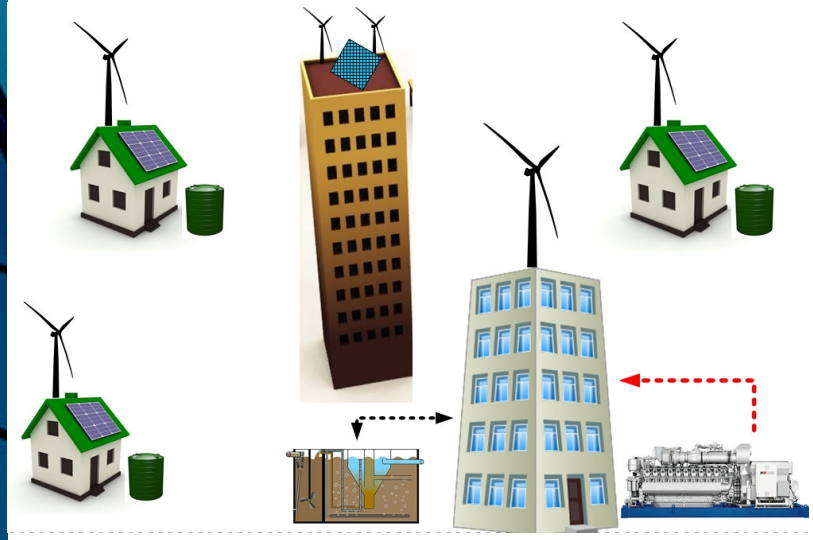
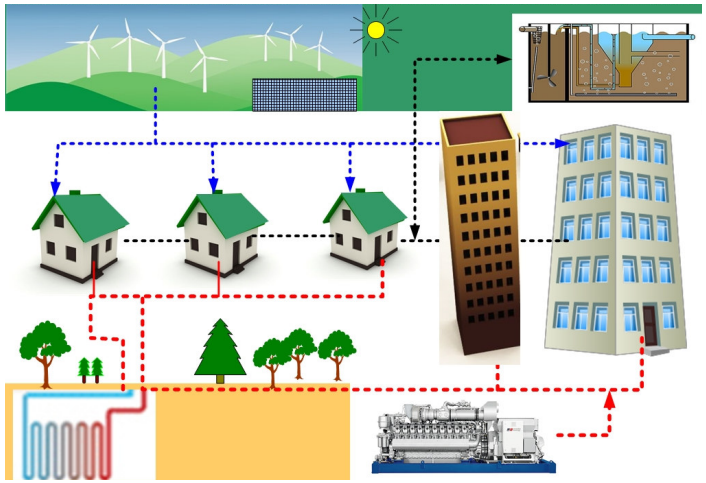
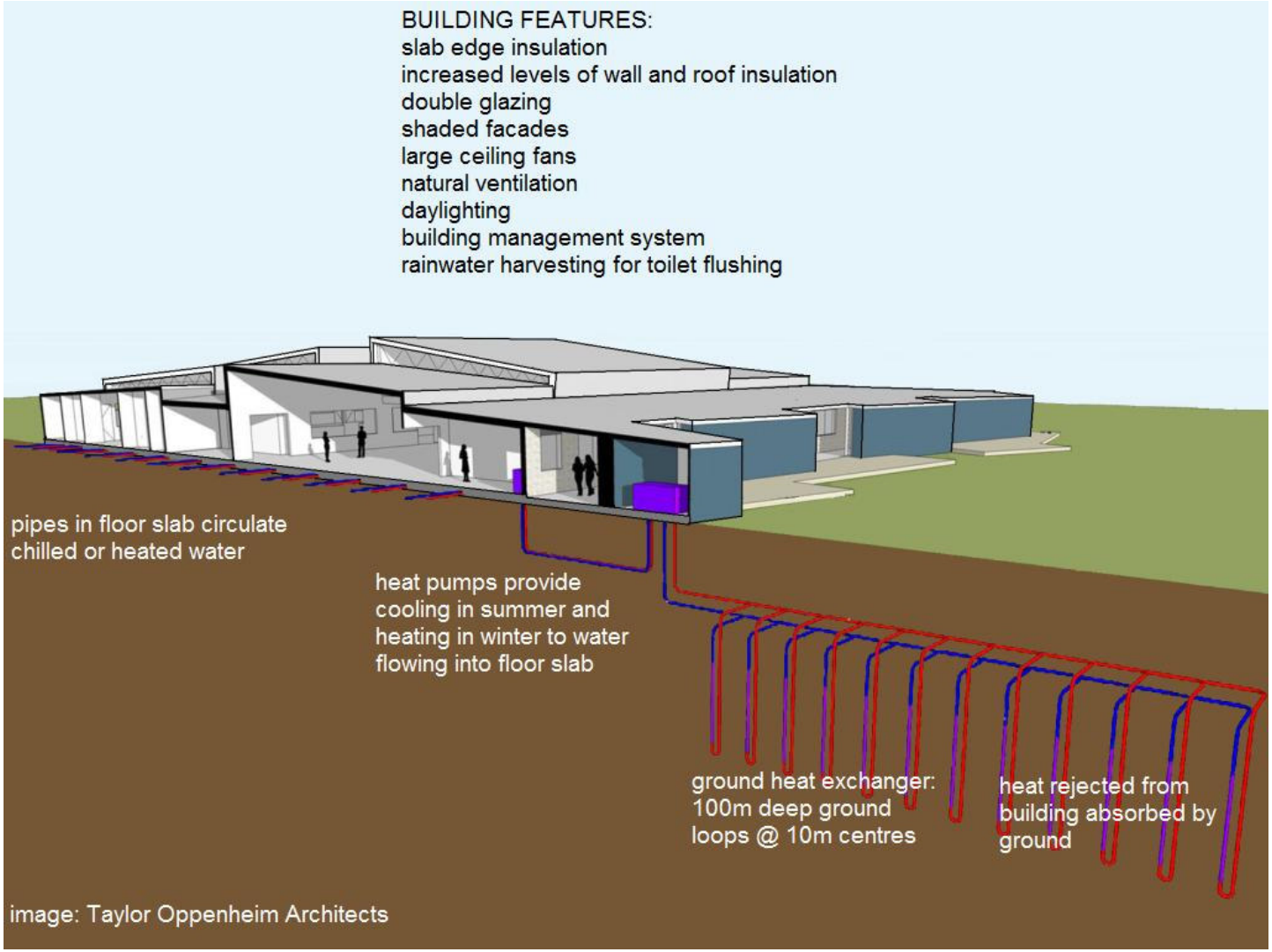
District Level Sustainable Infrastructure





GXI integration with building design

BUILDING FEATURES:
slab edge insulation
increased levels of wall and roof insulation
double glazing
shaded facades
large ceiling fans
natural ventilation
daylighting
building management system
rainwater harvesting for toilet flushing



MEINHARDT

Business Model Generation Framework For Sustainable Development

KEY PARTNERS	KEY ACTIVITIES	VALUE PROPOSITION	CUSTOMER RELATIONS	CUSTOMER SEGMENTS
• GOVERNMENT • INDUSTRY • FINACIAL INSTITUTION • COMMUNITY	• ENVIRONMENT LEGISLATION • RATING SYSTEMS • FUNDING MODELS	• QUALITY OF LIVING • RESOURCE EFFICIENCY • RETURN ON INVESTMENT • SOCIAL EQUITY	• COMMUNITY ENGAGEMENT • COMMUNITY EDUCATION	• COMMUNITY • FAMILIES • INDIVIDUALS
	KEY REOURCES • WATER • ENERGY • MATERIALS • ECOLOGY		DISTRIBUTION CHANELLS • SUSTAINABLE DISTRICT INFRASTRUCTURE • COMMERCIAL MODELS OF DEVELOPMENT	
EXPENSES			REVENUE STREAM	

BIONATURE 2011
Venezia, Italy, 24 May 2011

Panel "Advances on Sustainable Energy"

Interacting fields of knowledge for future sustainable energy systems

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BIONATURE 2011 - *Venezia, Italy, 24 May 2011*

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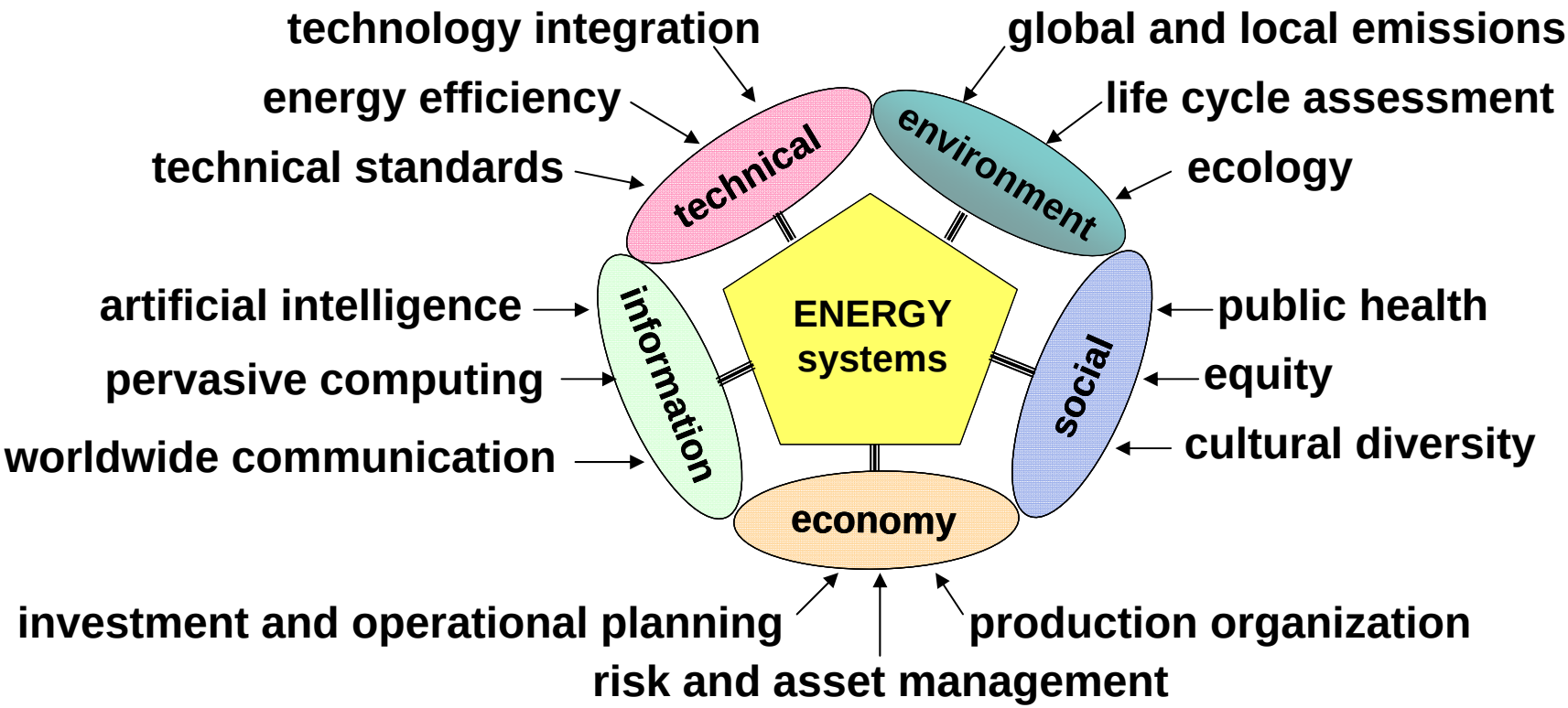
PRESENT CHALLENGES



transversal aspects

multi-objective optimization

sustainability indices

multi-attribute decision making

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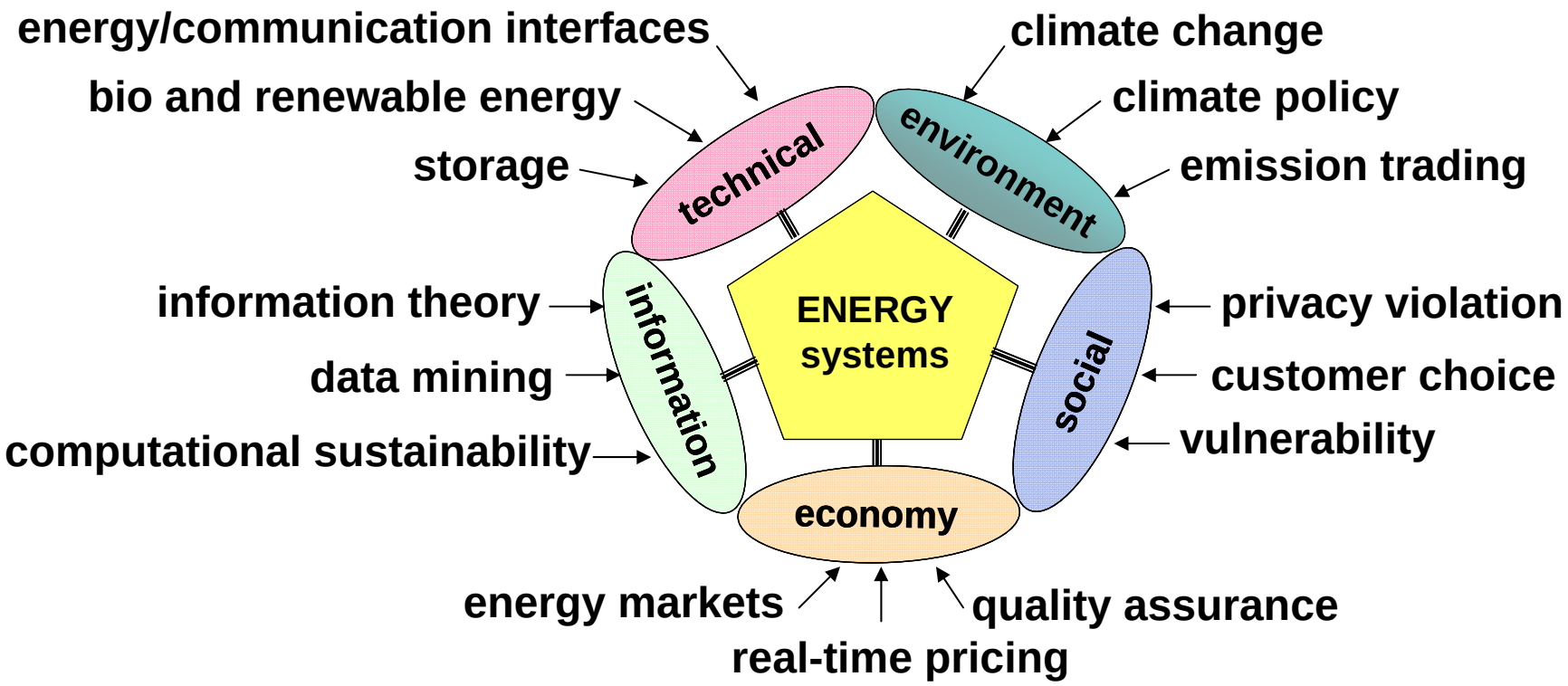
PERSPECTIVES AND PARADIGMS



paradigms

smart grids — **energy hubs**

DER – Distributed Energy Resources — **VPP – Virtual Power Plants**

IES – Integrated Energy Systems — **DMG – Distributed Multi-Generation**

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Panel: Advances on Sustainable Energy

Aspects of environmental compatibility for energy production

Venezia/Mestre,
May 24, 2011

POLITECNICO DI TORINO
DITAG
Prof. Giuseppe GENON

Energy: actual scenario

- increase in energy production and use, difficulty in de-coupling of development and energy increase;
- strong dependence on thermoelectric strategies;
- large use of fossil fuels;
- important effect on GHG production;
- critical local conditions (North Italy, central Europe) for fine dusts and ozone penetration;
- limited use of sustainable local energy vectors (biomasses, manure, organic sludges);
- technological maturity for co – generation and atmospheric emissions reduction

Prospects for improvement in compatibility

- containment in energy use, best policies for industrial and civil operations;
- efficiency in energy production;
- efficiency in use: co-generation, total use of thermal energy;
- exploitation of existing renewable resources (biomasses, organic fraction, residues);
- evaluation of total result in terms of GHG limitation;
- best available technologies for pollutant emission diminishment (NO_x removal, dust filtration, micro-pollutants abatement);
- territorial planning of production facilities