



Prof. Christophe Ménézo

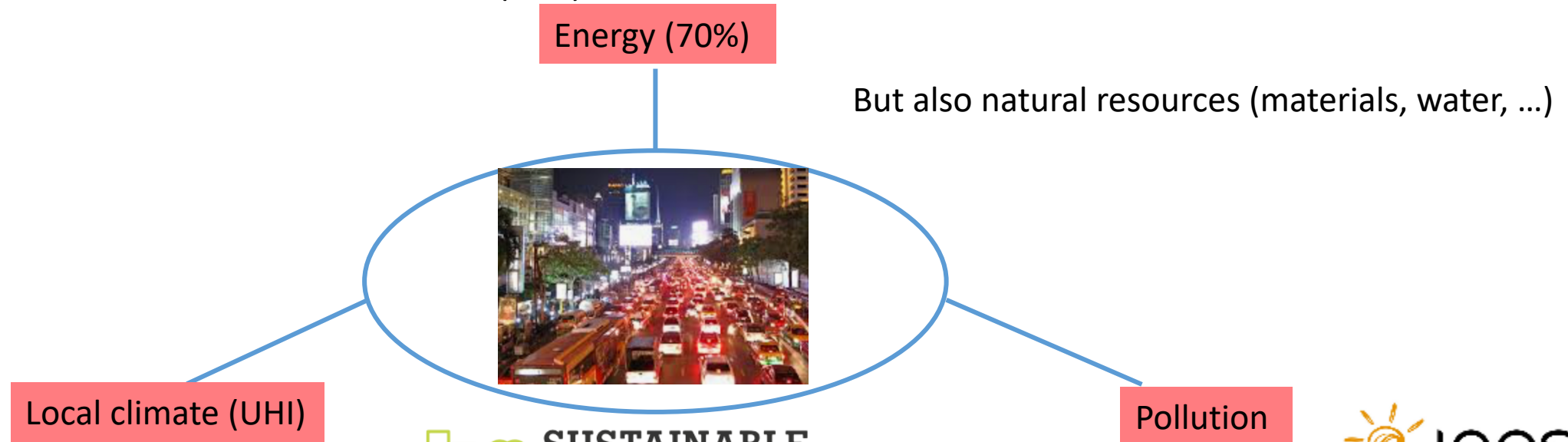
Deputy Head of Solar Academy Graduate School
Head of National Solar Research CNRS Federation FedEsol



Le Bourget-du-Lac, October 27 2020

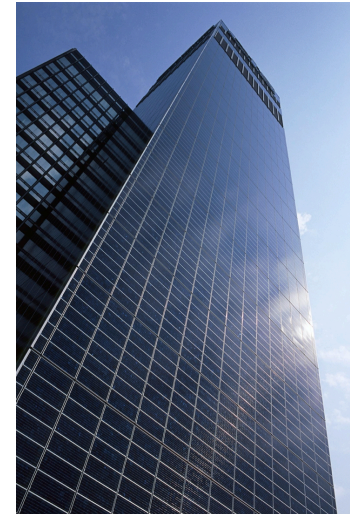
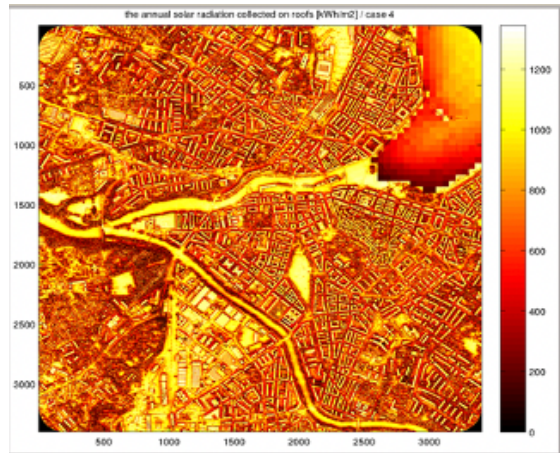


- ❖ Rising income, urbanization and increased access to electricity lead to rising demand for energy
- ❖ but also to tackle issues of climate change, population increase, energy security, water scarcity and economic growth
- ❖ in a complex urban environment where energy production/consumption cannot be dissociated from induced effect of pollution effects and local climate (UHI)





- ❖ The growth in end-use consumption results in electricity generation increasing 79% between 2018 and 2050
- ❖ Renewable energies technologies have to play a significant role in the energy transition, through passive applications and power generation,
- ❖ whilst helping to tackle issues of the climate change, population increase, energy security, water scarcity, economic growth and rising urbanization



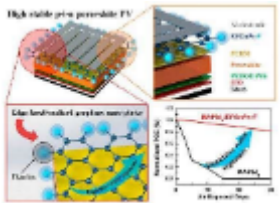
Comprehensive Approach of Solar Integration in the Built Environment

POWER GENERATION

INTEGRATION AND USE

MITIGATING CLIMATE CHANGE

PV – solar cells



Solar energy :

$1070 \cdot 10^{15} \text{ kWh} \gg 0,133 \cdot 10^{15} \text{ kWh}$
(Word energy use)

5.000 km² of PV
= 50% of built surface
= French electricity consumption.

Mixed with other zero carbon resources

Smart Grids and Storage



Built environment



Transportation and mobility



Sustainable Society

EUR
Solar
Academy

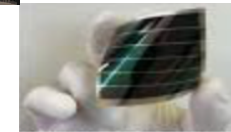
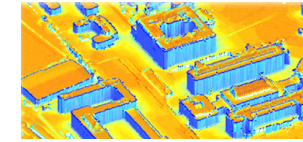


Buildings : 43% of
national energy use

Urban growth and
densification
2/3 world population
by 2050

SUSTAINABLE
PLACES 2020

- BIPV, DHC
- Smart Cities & Communities
- Digitalization Tools
- Business & Energy Efficient models
- Behavioural Change
- ...



Solar resources for
multi-scale energy
needs

- ❖ Diffuse and multiscale solar production
- ❖ Integrated clean energy
- ❖ Building design and urban planning

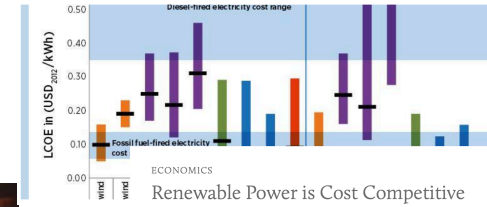
**Integrate
and
perpetuate**

Solar energy
digitalization for a
better reliability

- ❖ Mathematical models
- ❖ BIM & CIM 3D-4D -....
- ❖ Data mining

Diffusion of
solar energy use

- ❖ Usage & Behavior
- ❖ Business models
- ❖ Policies & Law



2 master courses

Solar Energy: Engineering and Business

3 scientific poles

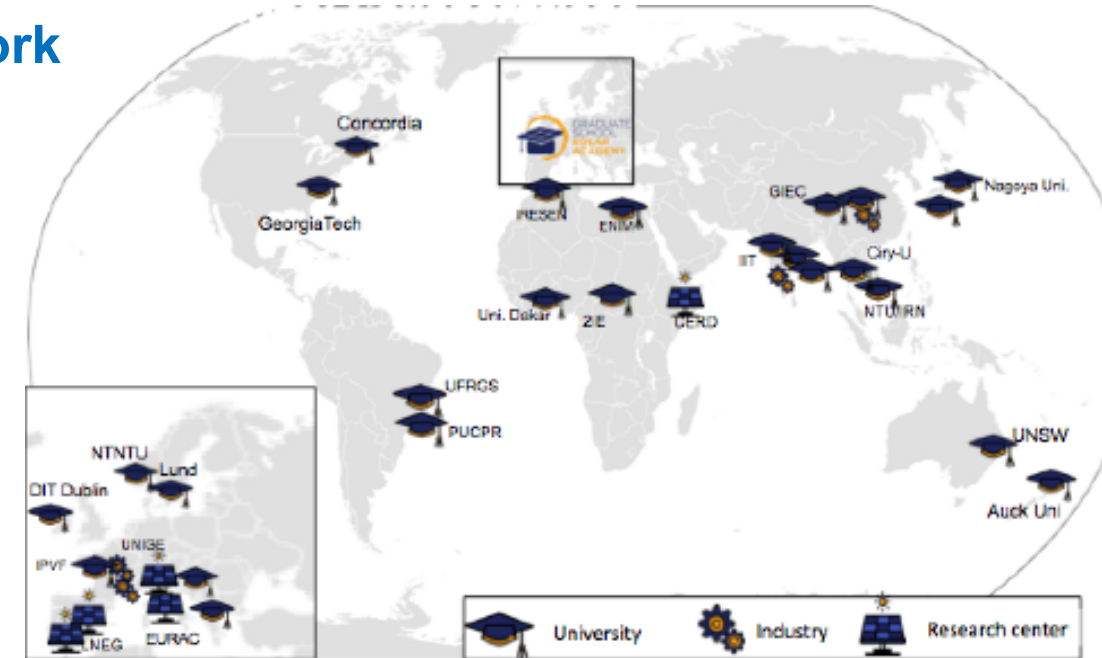
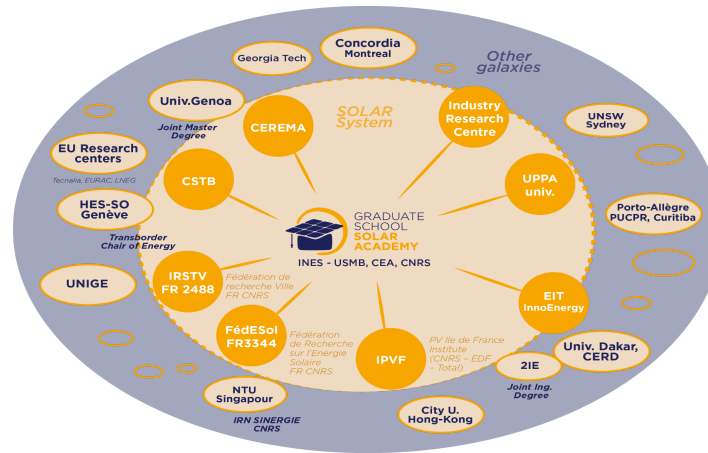


7 USMB/CNRS Lab

+

CEA-INES

National/international stakeholders + International Ambassadors Network



Solar System Relying on a strong connexion with other Galaxies !