



## THE TECHNICAL UNIVERSITY OF CRETE

The University consists of the following academic departments:

- DEPARTMENT OF MANAGEMENT & PRODUCTION ENGINEERING
- DEPARTMENT OF MINERAL RESOURCES ENGINEERING
- DEPARTMENT OF ELECTRONIC & COMPUTER ENGINEERING
- DEPARTMENT OF ENVIRONMENTAL ENGINEERING
- DEPARTMENT OF ARCHITECTURAL ENGINEERING
- DEPARTMENT OF SCIENCES

## THE TECHNICAL UNIVERSITY OF CRETE ... in numbers

- 6 DEPARTMENTS
- 100 FACULTY MEMBERS
- 38 VISITING STAFF
- 43 LABORATORIES
- 2,200 UNDERGRADUATE STUDENTS
- 563 GRADUATE STUDENTS

## Two new departments have been scheduled to start in the future

- DEPARTMENT OF FINE ARTS
- DEPARTMENT OF BIOMEDICAL ENGINEERING

## ENERGY SAVING POLICIES

- ✓ a major political and economic issue on a global scale, following the frenetic increase in international prices of energy resources
- ✓ extensive efforts by governments to control and develop new energy sources and scale down the dependence of their countries on imported energy

### European Union goals:

- secure stability for its energy supply and greater energy sufficiency
- adopt specialized policies for reducing energy wasting and develop production schemes using Renewable Energy sources.

## RENEWABLE ENERGY SOURCES

- Topic of discussions and research since 70's (first oil crisis).
- Early 80's: It becomes evident that aeolian energy is viable both technically and economically and can be commercialized.
- Today: investors' interest in all forms of renewable energy sources.



## RENEWABLE ENERGY SOURCES in Greece

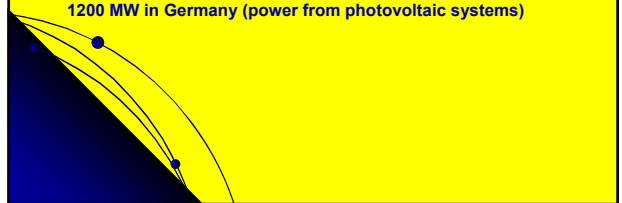
EU Directive 01/77: Greece must produce 20.1% of its energy from renewable energy sources

Greece adjusted its legislation and fully deregulated the production of electricity



## RENEWABLE ENERGY SOURCES in Greece

- Less than 1/1000 of world power from solar energy produced in Greece
- **2005:**
  - 5000 MW total world power from solar energy
  - 5 MW in Greece
  - 1200 MW in Germany (power from photovoltaic systems)



## Energy requirements on Crete

POWER PRODUCTION is barely enough to cover the demand

### Focus mainly on

- the creation of Aeolian parks
- Other technologies for power production (e.g. photovoltaic systems)

### INVESTMENT ON RENEWABLE ENERGY SOURCES ON CRETE

• AELONIAN PARKS	164 MW	200m euros
• SOLAR SYSTEMS (Thermal and photovoltaic)		80m euros
• BIOMASS, GREENHOUSES, ENERGY SAVING		70 m euros

## Renewable energy sources production on Crete

	AELONIAN PARKS	HYDRO ELECTRIC	BIOMASS	PHOTO VOLTAIC	TOTAL
Power (MW)	164	63.65	5.42	0.89	233.96
No of projects	30	2	1	8	41

## AEOLIAN PARKS ON CRETE

No.	Organization	LOCATION	Power (MW)
1	ΔEH	Lassithi	5.10
2	ΔEH	Lassithi	1.50
3	ΔEH	Lassithi	10.20
4	Rokkas Aeolian Ltd	Lassithi	10.20
5	Aeolos Ltd	Lassithi	9.90
6	Aeolian Parks company	Lassithi	10.00
7	Aeolian Parks company	Lassithi	10.00
8	Aeolian Parks company	Lassithi	5.00
9	Private Company	Lassithi	0.50
10	IWECO Ltd	Heraklion	4.95
11	ENERGON Ltd	Lassithi	2.50

## AEOLIAN PARKS ON CRETE

### In Hania:

- 3 Aeolian parks total capacity 12 MW
- Photovoltaic park total capacity 60 KW
- Hybrid power production system total capacity 63 MW

## T.U.C. & Renewable Energy Sources Technology

- Technology transfer
- Development
- Creation of RES facilities

### TUC labs and researchers:

intensive research activities in this field

## T.U.C. & Renewable Energy Sources Technology

The role of the Liaison Office:

- > Link between TUC researchers - production companies and organizations
- > Exploitation of research results

### TUC projects on innovation and technology transfer

- ✓ CRINNO project –
- ✓ UNISTEP Innovative Action: Incubator of Ideas of University Students
- ✓ Pole of innovation of the Region of Crete
- ✓ Creation of technological and scientific park in Hania

## TUC Research on Renewable Energy Sources

- Energy valorization of mass and biofuel production
- Liquid waste treatment and energy production through environmentally friendly processes
- Simultaneous treatment of urban waste and olive mill waste with simultaneous production of biogases
- Development of aelonian systems
- Management and functioning of electric power plants with aelonian machines
- Applications of photovoltaic devices
- Systems for the management and optimization of energy by renewable energy sources
- Applications with smart cards on energy saving issues
- Integrated electronic device for the management of information in systems for securing interior comfort with simultaneous energy management of buildings.

**Thank you.**

Nikos Varotsis  
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