



Workshop
Photovoltaic Energy Incentive Programs

**The EC Action for a
Sustainable Energy
System**

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European Commission
Directorate General for Energy and Transport

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OUTLINE

- ◆ Policy drivers and EU objectives for RES
- ◆ Measures and Instruments
 - Directives
 - RES-E, Improving Energy Efficiency of Buildings, Biofuels, *End-use efficiency and Energy services (proposal)*
 - Support Programmes
 - 6th FP: S/M term & M/L term actions, Solar sector in 1st call FP6
 - EIE Promotion, Market support, Trading & Certification
- ◆ Prospects
 - European Photovoltaic Technology Platform
 - IEA Scenario to 2030



POLICY DRIVERS

- ◆ **RES White paper 1997: increase share of RES from 6% to 12% of gross consumption by 2010**
- ◆ **Green Paper on Security of energy supply**
COM(2000)769def
- ◆ **EU commitments under the Kyoto Protocol on reducing greenhouse gas emissions**



DIRECTIVES AND TARGETS/1

◆ RES Electricity DIRECTIVE (2001/77/EC)

- Establish a framework to increase the share of RES-E from 14% to 22% of electricity consumption by 2010
- Commission to evaluate (by Oct 2005) application of support mechanisms, assess their success and, if necessary, propose a Community framework support schemes for RES-E

◆ Biofuels for transport (2003/30/EC)

- Targets: 2% by 2005; 5.75% by 2010

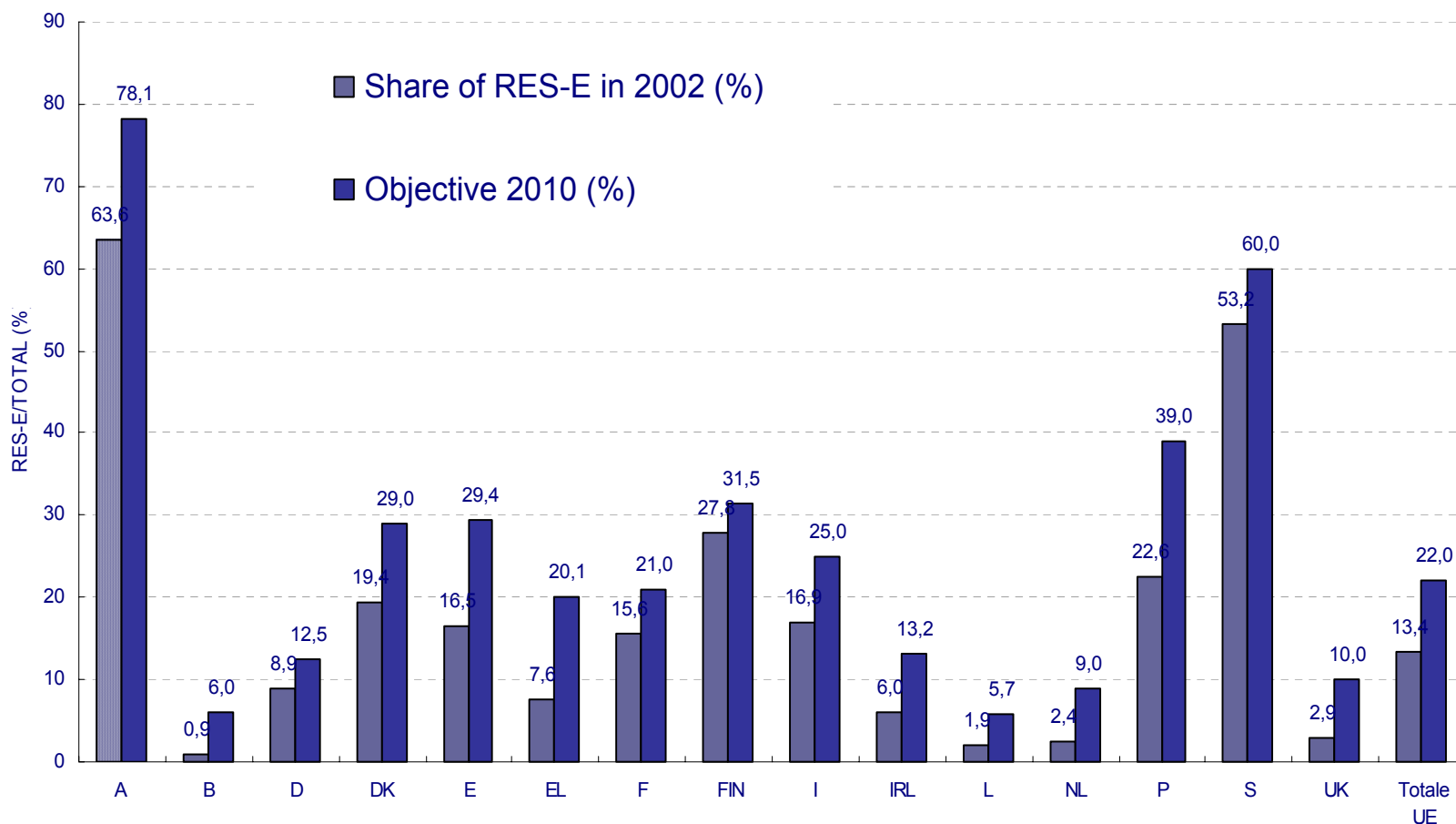


DIRECTIVES AND TARGETS/2

- ◆ **Energy performance of buildings**
(2002/91/EC): saving potential of 20%
- ◆ **Cogeneration of heat and power**
(2004/8/EC): electricity produced from CHP to 18%
- ◆ **Energy end-use efficiency** to reduce energy intensity by a further 1% per year (proposal)



RES-E in EU-15 *



* Estimates by Eurobserv'ER (2004)



SUPPORT PROGRAMMES



FP5 PV S/M TERM RDT (1998 – 2002)

Total cost €153M, EC contribution ~ €43M

- **Demonstrating economies of scale in BIPV (51%)**
- **Demonstrating innovative concepts for BIPV (19%)**
- **Large MW scale grid connected plants (17 %)**
- **Develop Balance of System components and Measurements tools (9%)**



SUSTAINABLE ENERGY IN FP6 (2003–2006)

◆ Medium and long term (405 M€)

Emphasis on research

- Improved technologies and systems
- New and improved devices

◆ Short and medium term (405 M€)

Emphasis on demonstrations

- Cost reductions
- Large scale integration into recognised supply chains



FP6: PV in M/L TERM

Launched Projects (~€35M)

- IP1: Crystalline silicon technologies (*Crystal clear*)
- IP2: Concepts for 3rd generation PV (*Full spectrum*)
- 3 STREPs: High concentration, Building integrated thin film PV, Hybrid organic cells
- 1 CA: Performance assessments & socio-economics (to be launched)



FP6: SHORT-MEDIUM TERM ACTIVITIES

	1st call	2nd call
	€80M	€75M
Date of publication	17 Dec. 2002	17 June 2003
Closure date	18 March 2003	17 Dec. 2003
Cost effective supply	IP, STRP, CA, SSA	
Large Scale Integration	CA&SSA	IP: CONCERTO
Eco-building	IP&STRP	IP: CONCERTO
Poly-generation		IP: CONCERTO



1ST CALL THEMATIC COVERAGE

- ◆ Renewable energy sources
 - 13 proposal recommended for support for a total of ~ €24 M of contribution
- ◆ Eco-buildings
 - 5 proposals recommended for support for a total of ~ €17 M of contribution
- ◆ Alternative motor fuels
 - 4 proposals recommended for support for a total of ~ €14 M of contribution



RES SUPPORT

- ◆ 13 proposals recommended for support

- ◆ Total EC contribution: € 24.12 M
 - € 9.10 M for solar
 - € 8.20 M for wind
 - € 3.04 M for biomass
 - € 1.80 M for geothermal
 - € 1.98 M for large scale integration



SOLAR SECTOR

- ◆ Selected one high quality IP proposal that brings together leading industry and RTD teams to work on integrating inverters into high voltage PV modules
- ◆ Two STRPs addressing PV module manufacturing processes
- ◆ One CA on solar heating also recommended for support



EIE (2003-06)

- ◆ **Intelligent Energy – Europe the support programme for non-technological actions** in the field of energy efficiency and renewables
- ◆ **Four sub-fields: Save, Altener, Steer, Coopener**
- ◆ **Deadline for first call for proposals 30 April 2004** (but Type-3 actions)



PV in Intelligent Energy - Europe

ALTENER

- ◆ **Barriers to low voltage grid connection**
- ◆ **Permits for PV building integration**
- ◆ **Tariffs for daytime generation but use at night**

COOPENER (with EU Energy Initiative)

- ◆ **Electricity services for poverty alleviation**



PROSPECTS



PV Platform

- ◆ Advisory Council (PV-TRAC) established to launch a Photovoltaic Technology Platform

- ◆ Expected impacts of the Technology Platform
 - Raise overall RTD investment & promoting public/private partnership
 - Address obstacles for deployment and accelerate market penetration
 - Achieve coherent and consistent policy and regulatory framework in the EU

- ◆ Conference late Sept 04 to launch the Platform



IEA REFERENCE SCENARIO

Investment in EU-15 electricity sector (2001-2030)

A. Generation

– New capacity	525
– Of which renewables	181
– Refurbishment	52

B. Transmission & Distribution

– Transmission	120
– Distribution	413

TOTAL (A+B) (\$billion)	1100
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Ref: IEA- WEIO 2003

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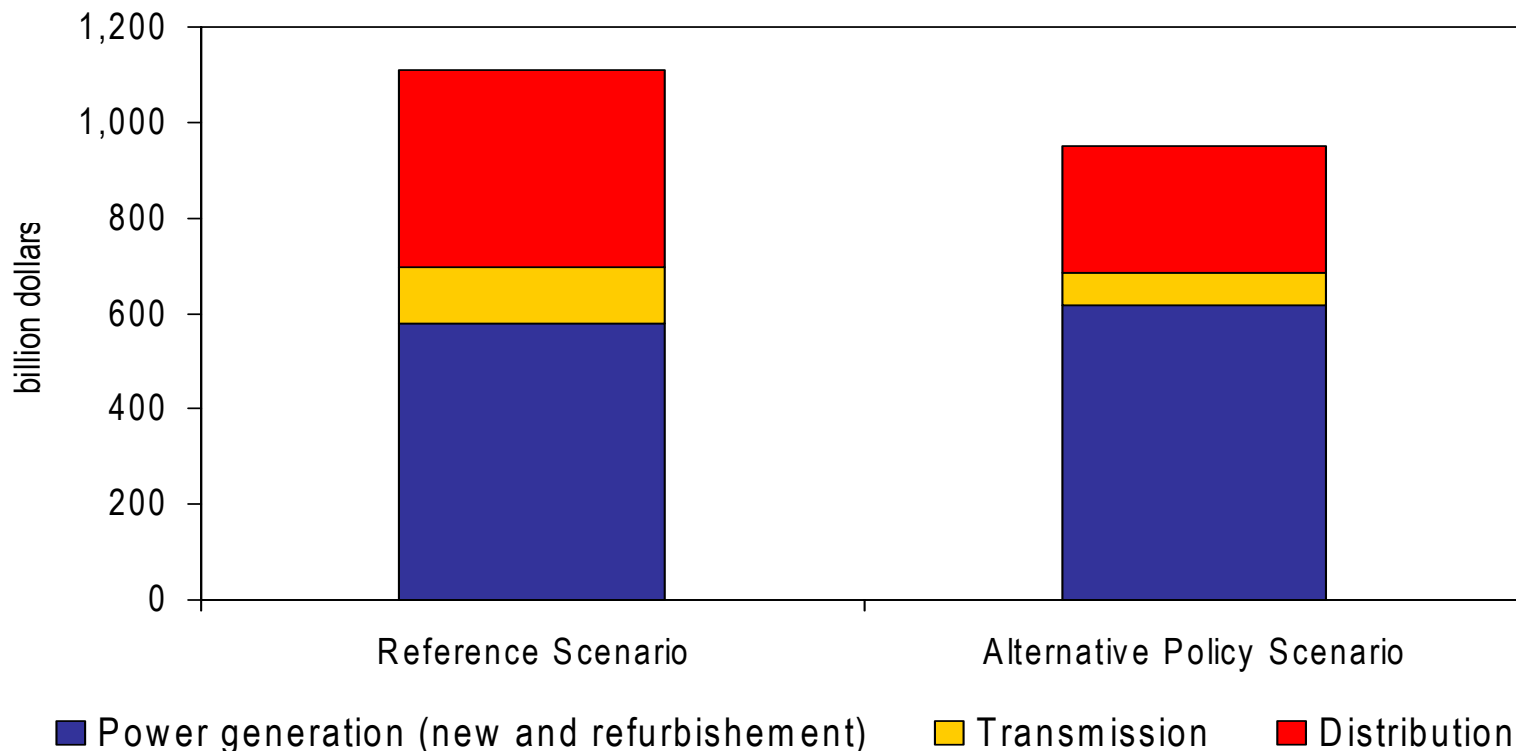
ALTERNATIVE POLICY SCENARIO

Assumptions

- ◆ Active policies impacting the power generation sector in terms of
 - Increased share of renewables
 - increased share of electricity from CHP
 - improved efficiency of supply and demand



EU Investment in the Reference and Alternative Scenarios



Ref: IEA- WEIO 2003

Transmission and distribution investments are much lower in Alternative Scenario, but generation investment slightly increases...



CONCLUDING REMARKS

- ◆ PV electricity generation represents one valuable option for a sustainable energy system
- ◆ European PV industry is progressing and investing
- ◆ A higher coordination between European, National and regional programmes may be needed
- ◆ Pursuing **incremental progresses** by maintaining the stability of support programmes and schemes