Intelligent Energy Europe

PV-NMS-NET

Centrum Fotowoltaiki

Central and Eastern Europe Land of the rising opportunities in photovoltaics

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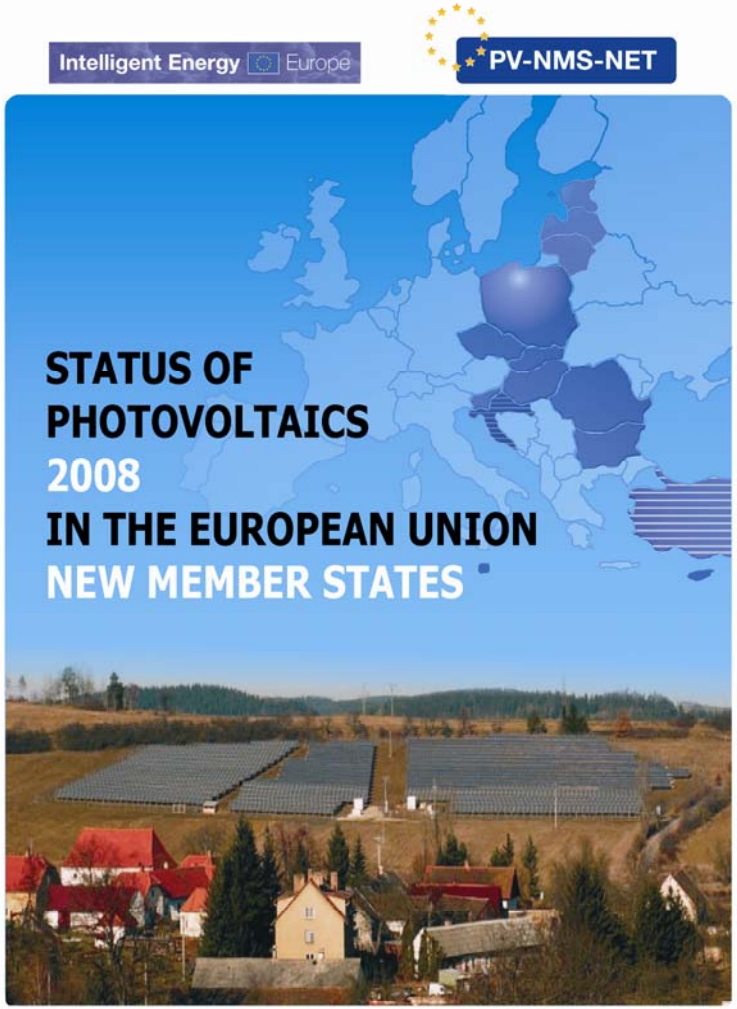
Warsaw University of Technology


Intelligent Energy Europe
PV-NMS-NET
STATUS OF
PHOTOVOLTAICS
2008
IN THE EUROPEAN UNION
NEW MEMBER STATES
Bulgaria, Cyprus, Czech Republic, Estonia, Hungary,
Latvia, Lithuania, Malta, Poland, Romania,
Slovakia and Slovenia
with Croatia and Turkey

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	Mr. Miklos Palfy. Solart-System Engeneering Ltd. (SOLART-SYSTEM Ltd.) Address: Gulyas Street 20, H-1112 Budapest XI, Hungary Telephone: +36-1 2461 783 Fax: +36 1 2461 783 E-mail: palfymiklos@solart-system.hu URL: http://www.solart-system.hu
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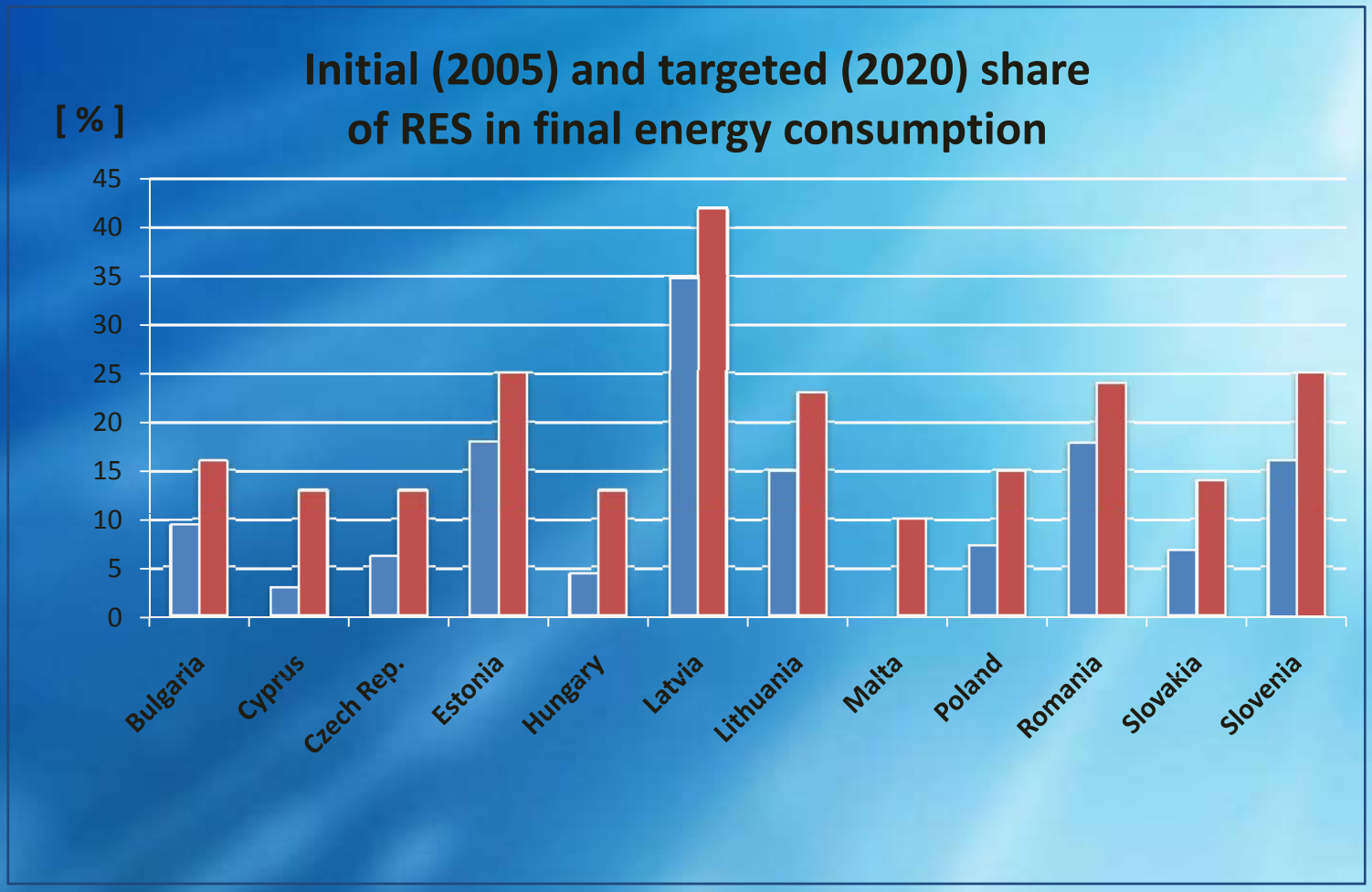
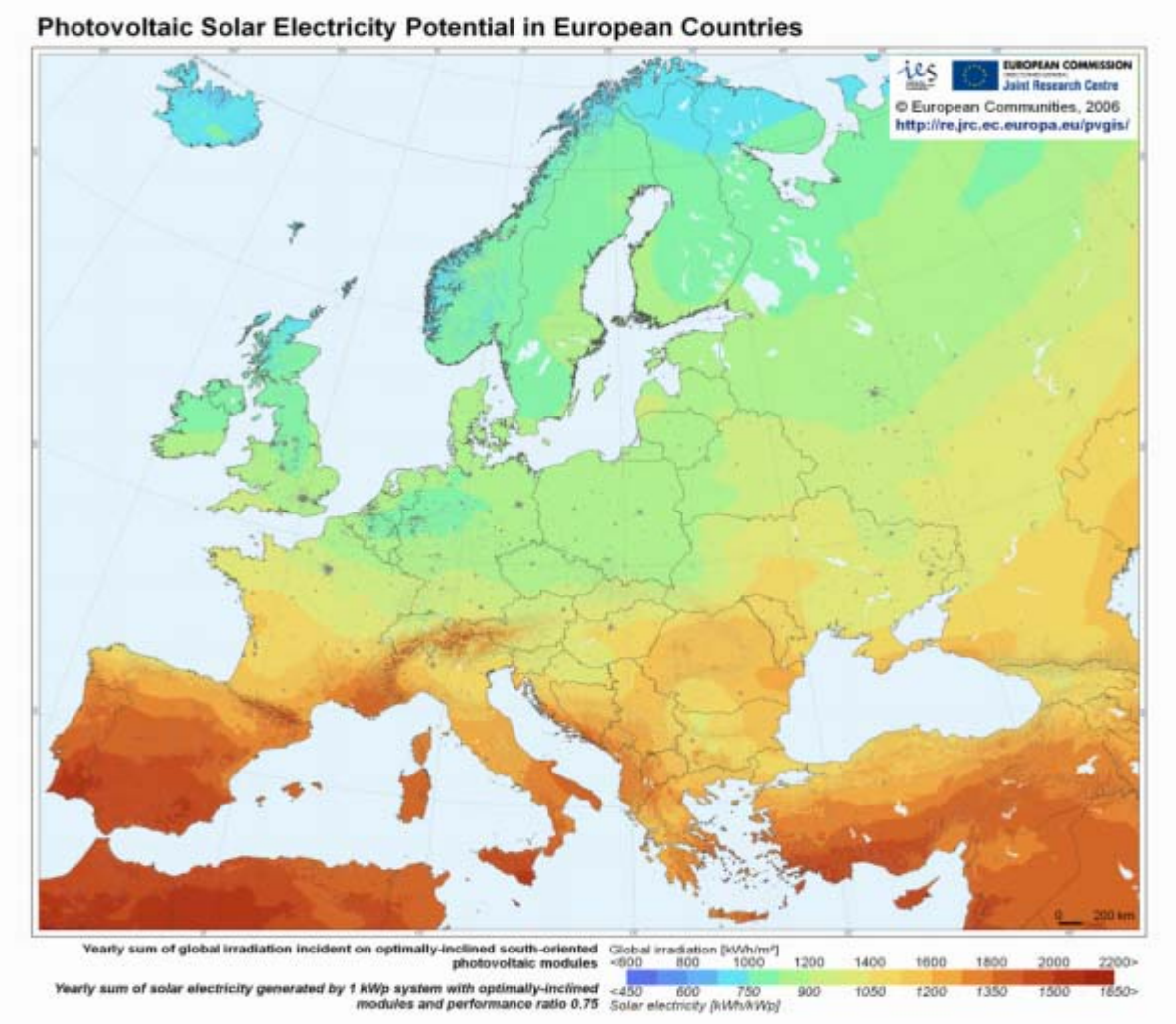
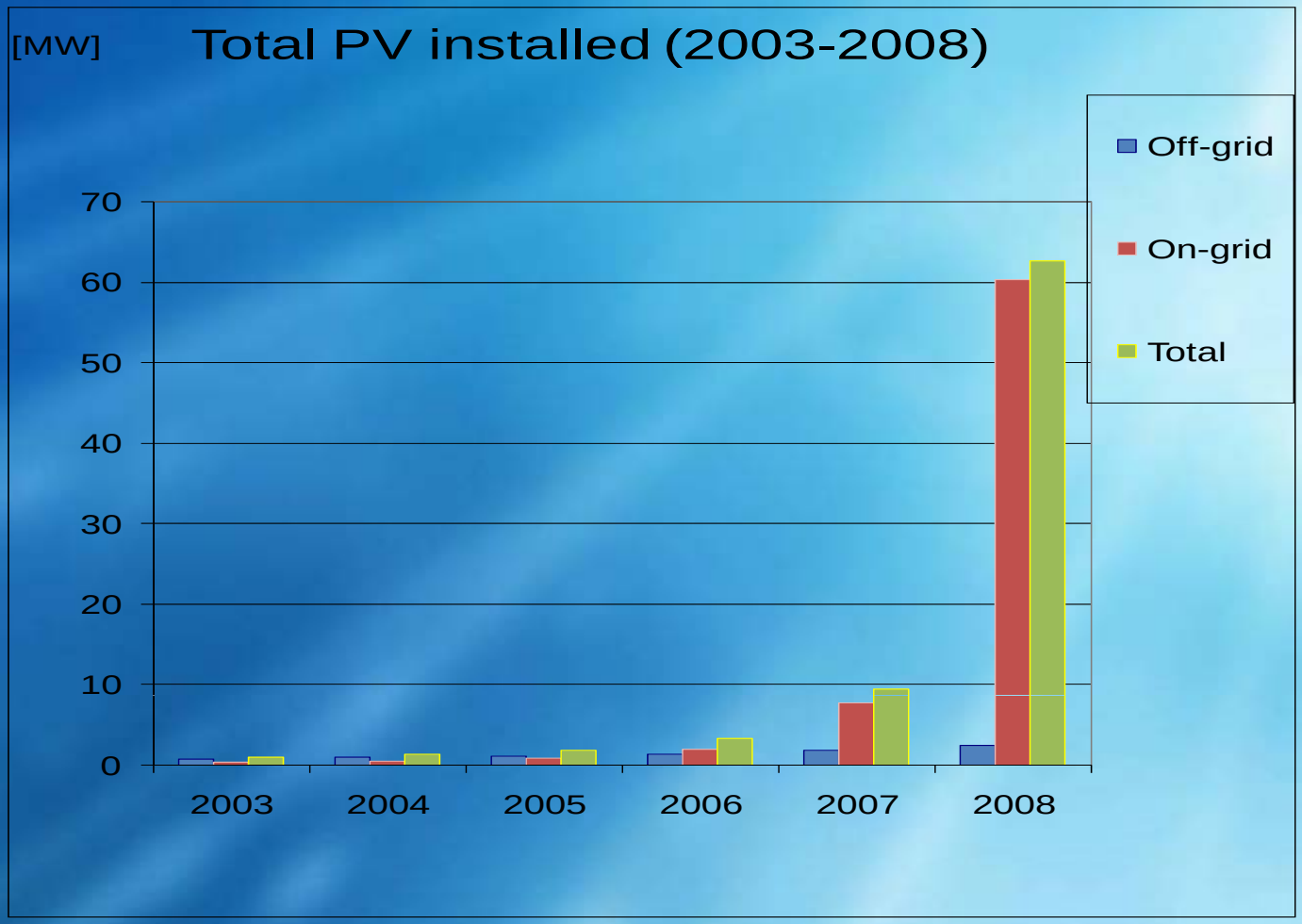
Targeted share of RES in final energy consumption in 2020



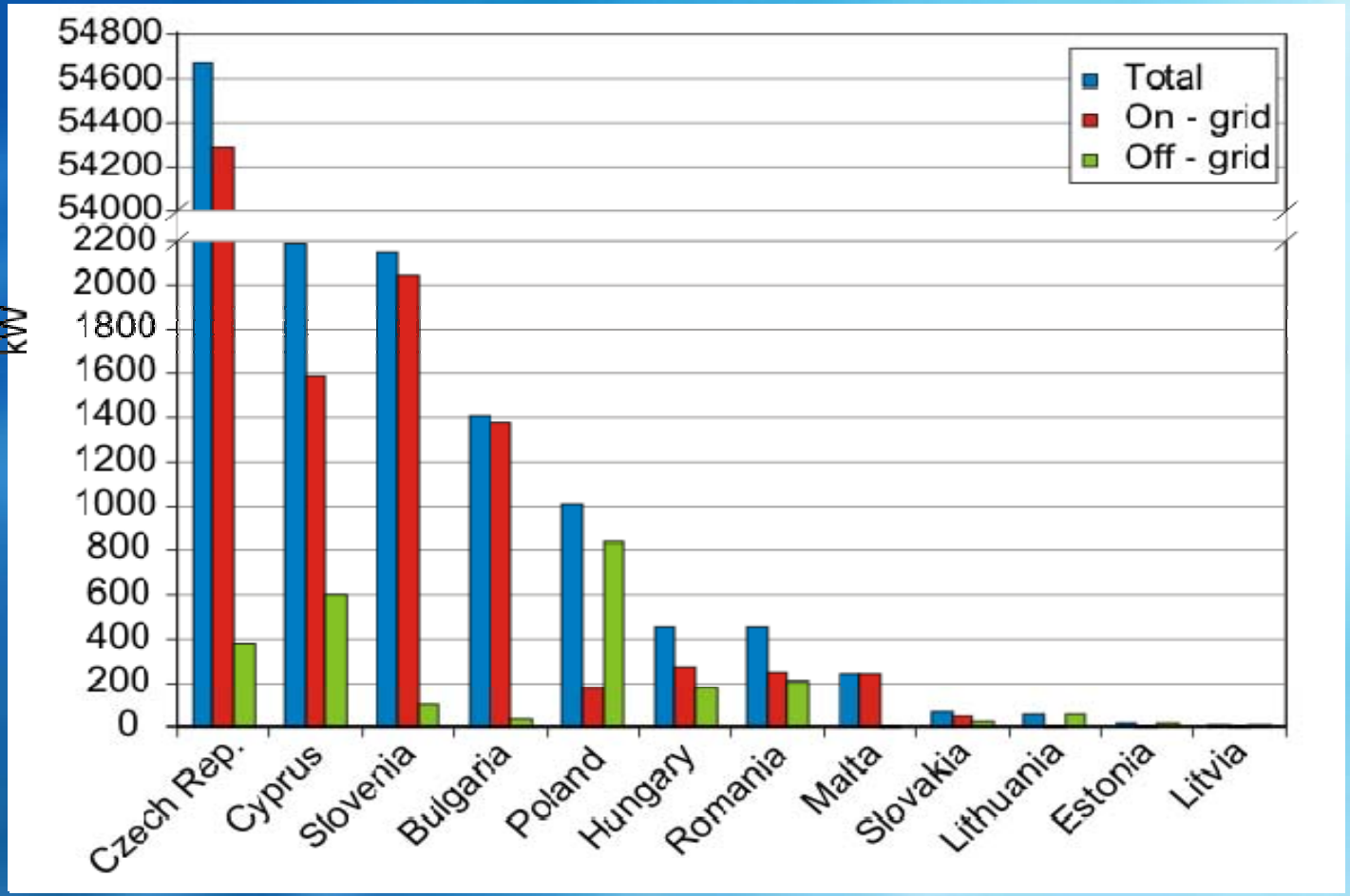
PV potential in Europe



Trends in total installed PV power in NMS (2003-2008)

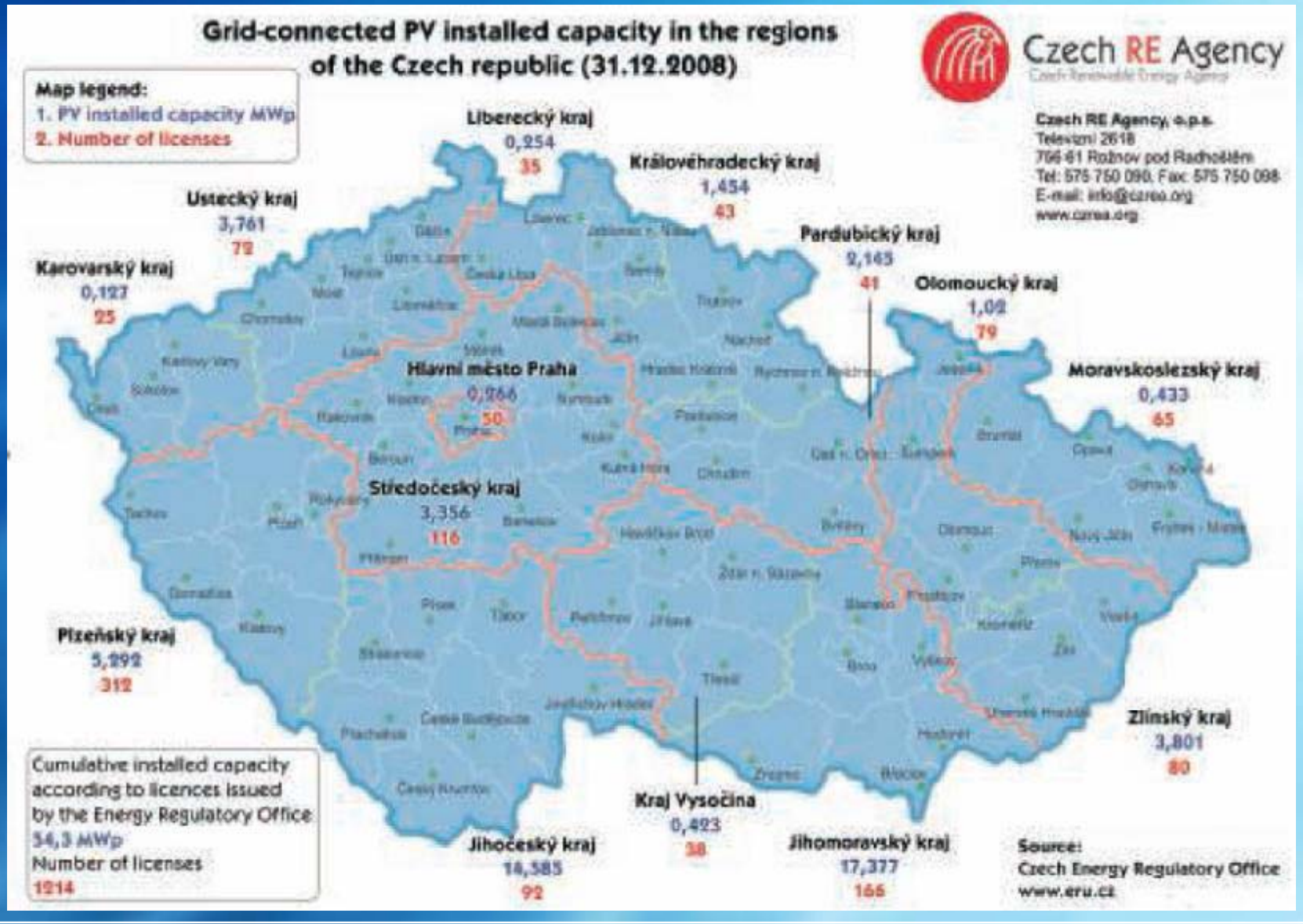


The cumulative installed PV power in each NMS(2008)



Cumulative installed PV power in NMS (2003-2008).

Country NMS	2003	2004	2005	2006			2007			2008		
	Total	Total	Total	Off-grid	On-grid	Total	Off-grid	On-grid	Total	Off-grid	On-grid	Total
	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]	[kW]
Czech Rep.	330	363	470	194	546	740	209	5252	5361	380	54 294	54 674
Slovenia	51	96	200	95	310	405	100	925	1025	100	2 046	2 146
Cyprus	254	340	518	450	578	1028	560	843	1403	600	1586	2186
Bulgaria	20	33	43	13	53	66	20	55	75	32	1 375	1 407
Poland	107	234	291	337	101	438	488	152	640	832	179	1011
Hungary	100	138	155	100	150	250	130	220	350	180	270	450
Romania	50	86	101	95	95	190	175	125	300	205	245	450
Malta	4	9	15	0	48	48	0	97	97	0	238	238
Lithuania	17	17	19	40	0	40	55	0	55	55	0	55
Slovakia	10	15	20	20	0	20	20	26	46	20	46	66
Estonia	2	2	2	5	0	5	12	0	12	12	0	12
Latvia	3	3	3	3	0	3	4	0	4	4	0	4
TOTAL	948	1336	1837	1352	1881	3233	1773	7695	9368	2 420	60279	62 699


Grid-connected PV installed capacity in the regions of the Czech republic (31.12.2008)
Map legend:
1. PV installed capacity MWp
2. Number of licenses
Czech RE Agency
Czech RE Agency, o.p.s.
Televizní 2618
766 61 Rožnov pod Radhoštěm
Tel: 575 750 090, Fax: 575 750 098
E-mail: info@czrea.org
www.czrea.org
Liberecký kraj
0,954
35
Královéhradecký kraj
1,454
43
Ustecký kraj
3,761
72
Pardubický kraj
2,145
41
Karovarský kraj
0,127
25
Olomoucký kraj
1,02
79
Hlavní město Praha
0,266
50
Moravskoslezský kraj
0,433
65
Středočeský kraj
3,356
116
Plzeňský kraj
5,292
312
Zlínský kraj
3,801
80
Kraj Vysočina
0,423
38
Jihočeský kraj
14,585
92
Jihomoravský kraj
17,377
166
Cumulative installed capacity according to licences issued by the Energy Regulatory Office
54,3 MWp
Number of licenses
1214
Source:
Czech Energy Regulatory Office
www.eru.cz


Zornitza, Bulgaria

Measures of RES support in NMS

	Feed-in tariff	Quota system	Green certificates	Tax incentives	Preferential loans	Net-metering
Bulgaria	✓				✓	
Cyprus	✓	✓				
Czech Republic	✓			✓		
Estonia	✓			✓		
Hungary	✓	✓			✓	✓
Latvia	✓					
Lithuania	✓			✓	✓	
Malta				✓	✓	✓
Poland		✓	✓	✓	✓	
Romania		✓	✓	✓	✓	✓
Slovakia	✓				✓	
Slovenia	✓			✓	✓	

Feed – in tariffs for PV in NMS

Country	Feed-in tariff rate for PV (EUR/kWh)	Granting period (years)	Degression	Price of electricity (EUR)
Bulgaria	<5KW – 0,428 >5KW – 0,380	25	no	
Cyprus	0,383 for houses and non-profit entities 0,36 for companies 20,5-22,5 with subsidy	15 or 20	no	0.12-0.16
Czech Republic	0.4603-0.4634 or bonus	20	5%	
Estonia	0,073	12		
Hungary	0,093	investment payback	no	0,156€/kWh for households
Latvia	0,427 since 02.2009	10	no	0,106
Lithuania	to be set by National Control Commission for Prices and Energy		no	
Malta	No			
Poland	GC = 250 PLN (57 EUR)			0,09
Romania	CG = 4 x (27 – 55) EUR	15	no	0,144 – 0,256
Slovakia	0,280 0,45 since 2009	1	yes (from 2009) 10%	
Slovenia	0,399 or bonus	15	7%	

Grid connection process in NMS

Country	Priority access to the grid for solar systems	Simplified procedure	Number of institutions conditioning approval	Complexity of the procedure	Time spent on administrative procedure before installing the PV system	Grid connection costs paid by PV electricity producer
Bulgaria	NO	NO		difficult but improving	6-12 months	Shared
Cyprus	NO	NO	2-5	difficult but improving	<6 months	None for small systems 50% larger PV systems (<100kWp) and when grid extension is required
Czech Rep.	YES	NO	4-7	difficult but improving	<6 months	Shared
Estonia	NO	NO				Total
Hungary	YES	YES		reasonable	<6 months	None
Latvia	NO	NO	3-7	difficult but improving	<6 months	Total
Lithuania	NO	NO	1	reasonable	<6 months	40%
Malta	YES	YES	1-3	reasonable	<1 month	Total
Poland	NO	NO	>10	difficult	<1 year	50%
Romania	YES	YES	3-6	difficult	6 months	none/shared for >10MWp
Slovakia	soon	NO	>10	difficult	1-2 years	Total
Slovenia	YES	NO	3-6	difficult but improving	< 6 months	Shallow

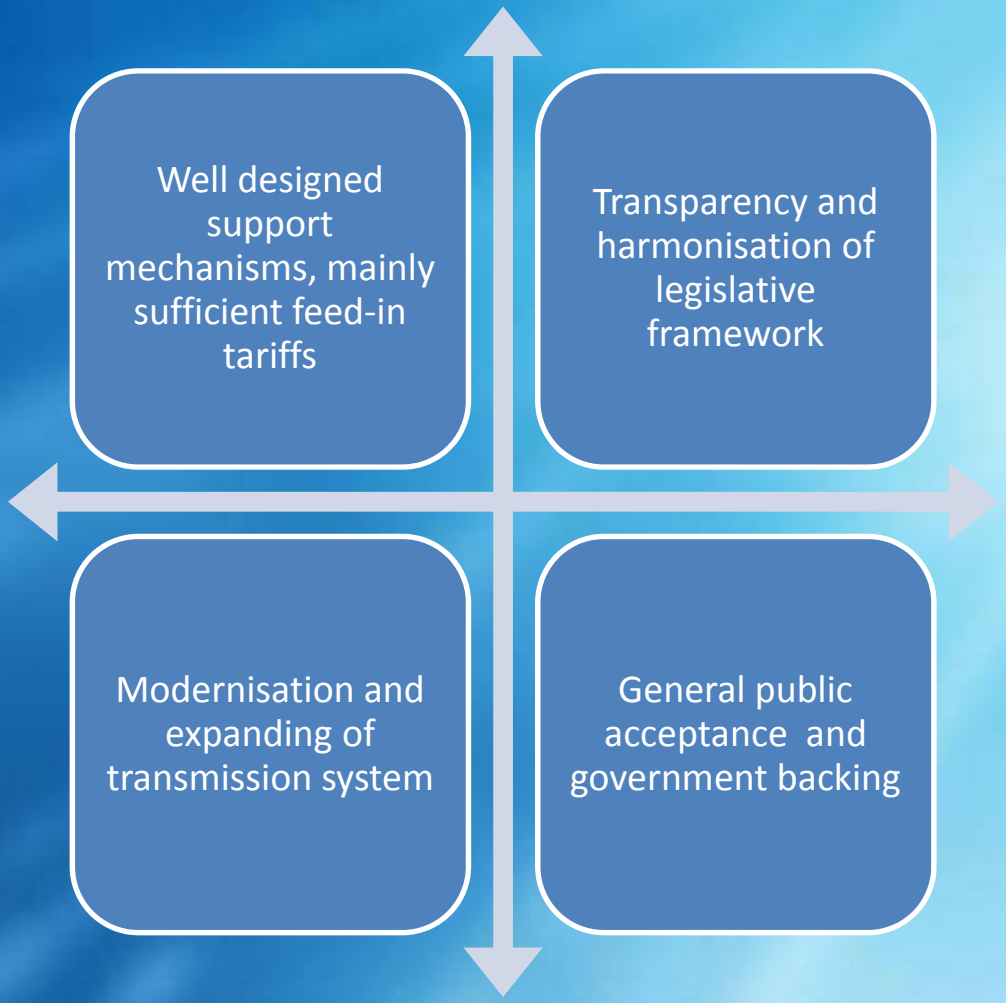
Producers of the components of PV system

Country	Producer of:			
	c-Si wafers	solar cells	Modules [production/capacity]	BOS
Bulgaria	• Institute of Non-ferous Metals, Plovdiv	-	• SolarPro [-/18 MW] • BG Solar Panels [10 MW] • Energy Solutions [10 MW]	Many small companies propose such kind of acivities
Cyprus	-	-	• EN Foton Solar Ltd. [-/5 MW]	-
Czech	-	• Solartec	• SchottSolar [-/200 MW] • Kyocera [-/<100 MW] • O&M Solar [-/30 MW] • Fitcraft production [-/15 MW] • Solartec [-/5 MW]	• Poulek Solar Co. Ltd, tracking systems • Cz Elektronika, tracking systems • FRONIUS CZ, inverter transformer
Estonia	-	-	-	-
Hungary	-	-	• Sanyo [-/100 MW] • Korax SiX [-/10 MW] • Heliogrid [-/24 MW] • Genesis PV [-/300 MW] - under construction	-
Latvia	-	-	-	-

Producers of the components of PV system

Country	Producer of:			
	c-Si wafers	solar cells	Modules [production/capacity]	BOS
Lithuania	• UAB Saulės energia [-/ 30kW]	• UAB Precizika-MET plans for 2009 – 2,5 MW]	-	-
Malta	-	-	-	-
Poland	• SILIMAT, CZ ingots and wafers	-	Jabil (-/100 MW)	-
Romania	-	-	DGM SOLARSYSTEMS (-/4 MW) crystaline	-
Slovakia	-	-	-	• SolarNed (BP Solar) • ACERA • Schueco International KG • Delta Electronics
Slovenia	-	-	• Bisol [-/15 MW] • Trimo • Adria Solar [-/20 MW]	• ETI, ISKRA, Kon Tiki Solar, controllers and electronic equipment • TAB, batteries

Key elements for PV technology development in CEES



Research and develpment centers in CEES

Bulgaria	**Central Laboratory of Solar Energy and New Energy Sources at the Bulgarian Academy of Sciences**
Cyprus	**Department of Electrical Engineering at the University of Cyprus**
Czech Republic	**Academy of Sciences of the Czech Republic and Czech Renewable Energy Agency**
Estonia	**Tallin Technical University (as a member of Nordic PV Centre of Excellence along with Sweden, Finland, Norway and Russia)**
Hungary	**The Hungarian Photovoltaic Platform within The National Technology Platform for Integrated Micro and Nanosystems**
Latvia	**Institute of Physical Energetics**
Lithuania	**Applied Research Institute for Prospective Technology, PV Technology Cluster**
Malta	**Institute of Energy and Technology**
Poland	**Centre for Photovoltaics at he Warsaw University of Technology**
Romania	**Academy of Scientists from Romania and the New Energy Sources Laboratory at the Research Institute for Electrical Engineering**
Slovakia	**Slovak Technical University**
Slovenia	**Faculty for Electrical Engineering**

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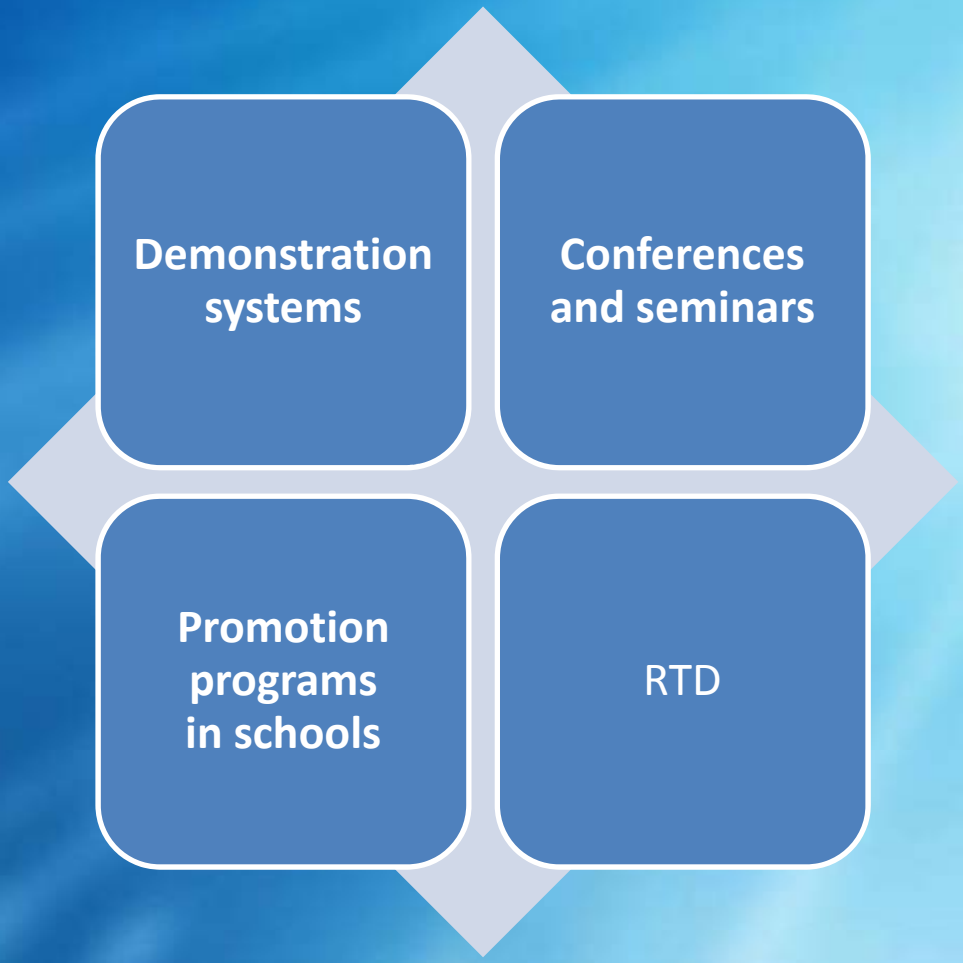
Centrum Fotowoltaiki

Outdoor Test Facility, Centre for Photovoltaics Warsaw University of Technology

Dissemination – major instruments of PV promontion in CEES



Summary

- **New Member States of the EU are still at an initial stage of PV market development**
- **there was remarkable growth in Czech Republic and Bulgaria in 2008**
- **In the majority of CEES the moderate growth of PV market has been observed**
- **European Union energy legislative package adopted in 2008 binds all the member states to raise the use of RES.**

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