IENE
Photovoltaic Workshop

Italian Market: status and perspectives

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1st FEED-IN PROGRAMME

- Defined by a Ministry of Industry decree, approved on Jul.05 and integrated on Feb.06
- Managed by GSE (Manager of Electric Services)
- Promoted the production of electricity from grid connected PV plants (from 1 kW to 1 MW)
- Maximum Power supported: 500 MW
- Annual limit: 85 MW

FIRST RESULTS

- Projects for a total power of 388 MWp have been positively evaluated
- Only 1/2 of the admitted projects are going to be effectively realized
- Reasons:
  - administrative barriers
  - problems with Utilities for grid connection
  - “license trade” effect

THE NEW DECREE

Issued on Feb.07 has established

- Simplified procedure: applications for admission to feed in tariffs submitted after plant construction
- Installation without permission (in area not subject to constrains)
- Utilities compelled to pay penalties for delays in regard to grid connection of PV systems
- Increase of the national objective to 3 GW by 2016
- Increase of the supported capacity to 1 200 MW
- Elimination of the annual limit

THE NEW TARIFFS

- Increased in values accordingly the degree of PV integration in the building
- Higher for small size plants
- Reduced for large plants especially free standing
- Valid for a period of 20 years at constant remuneration
- Decreased by 2% each calendar year, for applications submitted after 2007

THE NEW TARIFFS

(c€/kWh)

Plant size (kW)	*No integration*	*Partial integration*	*Full integration*
$1 \leq P \leq 3$	40	44	49
$3 < P \leq 20$	38	42	46
$P > 50$	36	40	44

FURTHER BENEFITS

- In case of energy efficiency interventions in buildings, tariffs are increased up to 30%, depending on energy saving level achieved

- 5% tariff increase for:
  - self-producers (consumption > 70% production)
  - public schools and public health centers
  - BIPV substituting asbestos roofs
  - small Municipalities (< 5000 inhabitants)

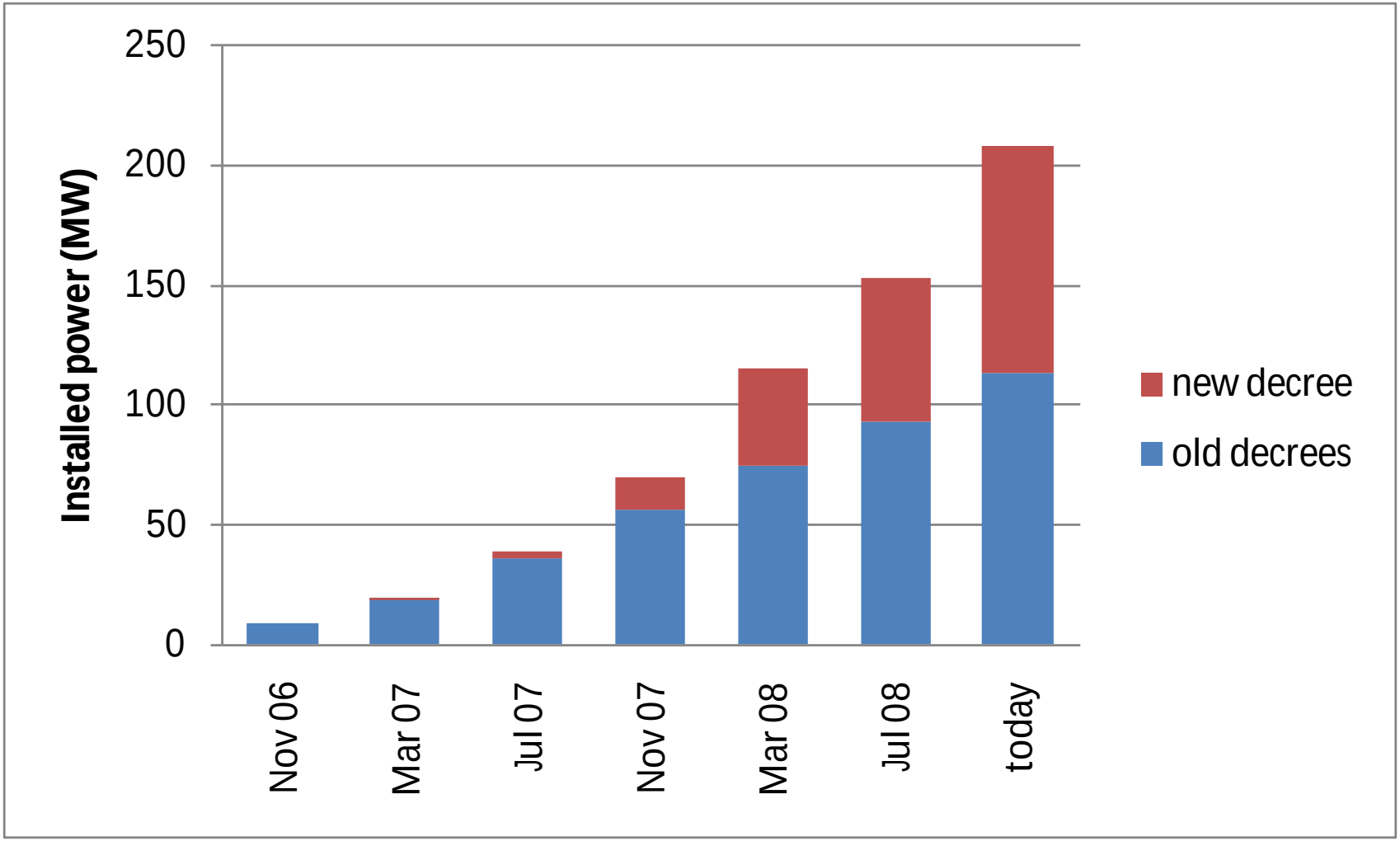
- At the tariff must be add the further value due to
  - net metering for small plants (15 c€/kWh)
  - or sale to the Utility at a fixed price (9 c€/kWh)

"REQUIRED RESOURCES

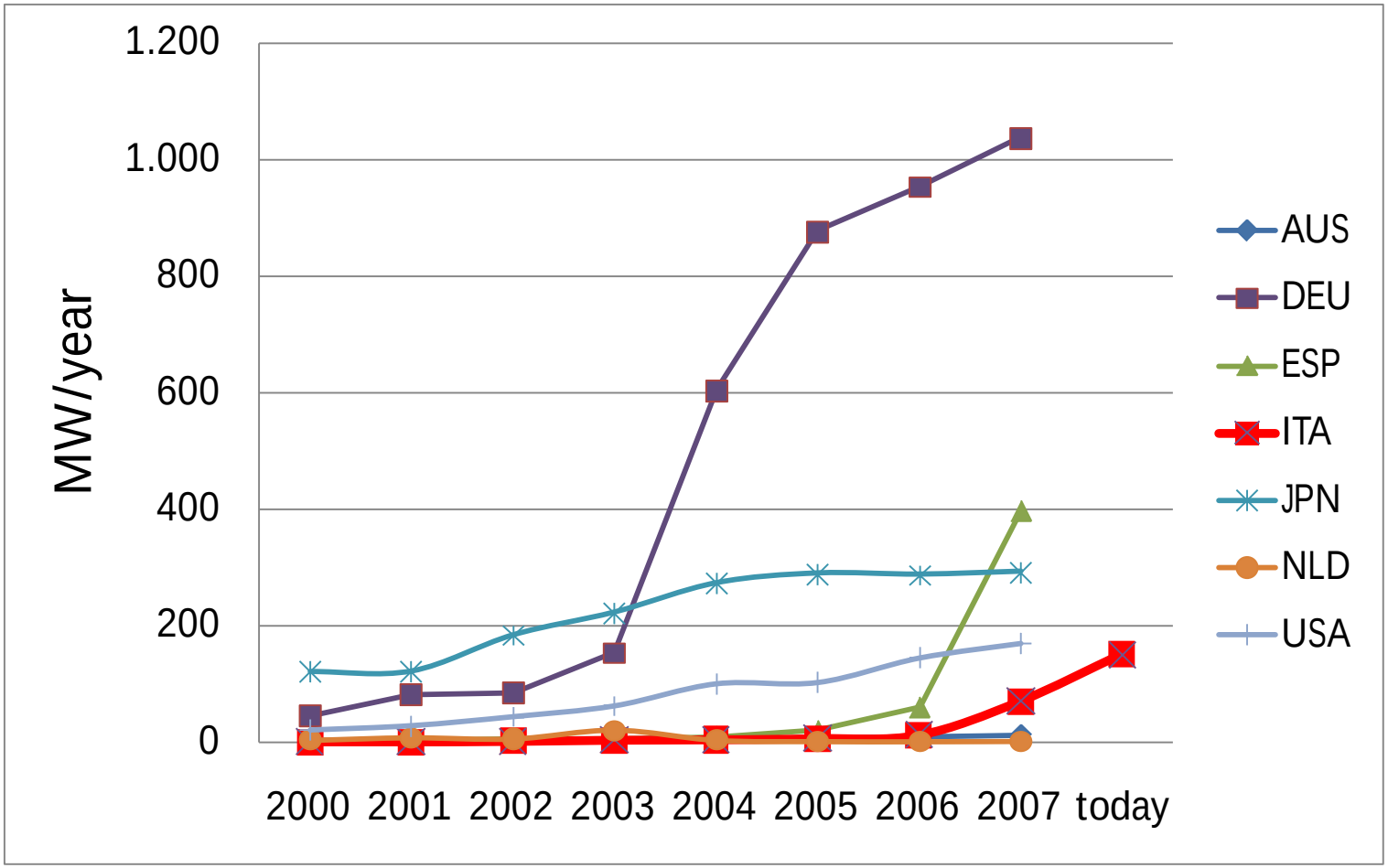
- Cost increase per user: + 5 €/year (+ 1%)
  - Supported power: 1.2 GW (1.5 TWh/year)
  - Financial resources: 1.5 TWh * 0,42 € = 630 M€/year
  - Consumption in Italy: 350 TWh/year
  - Cost increase per kWh: 630 M€ / 350 TWh = 0,18 c€/kWh

- Total investment: 8.000 M€
- Estimated labour places: 25.000 units

PROGRAMME RESULT



INSTALLED POWER IN SOME COUNTRIES



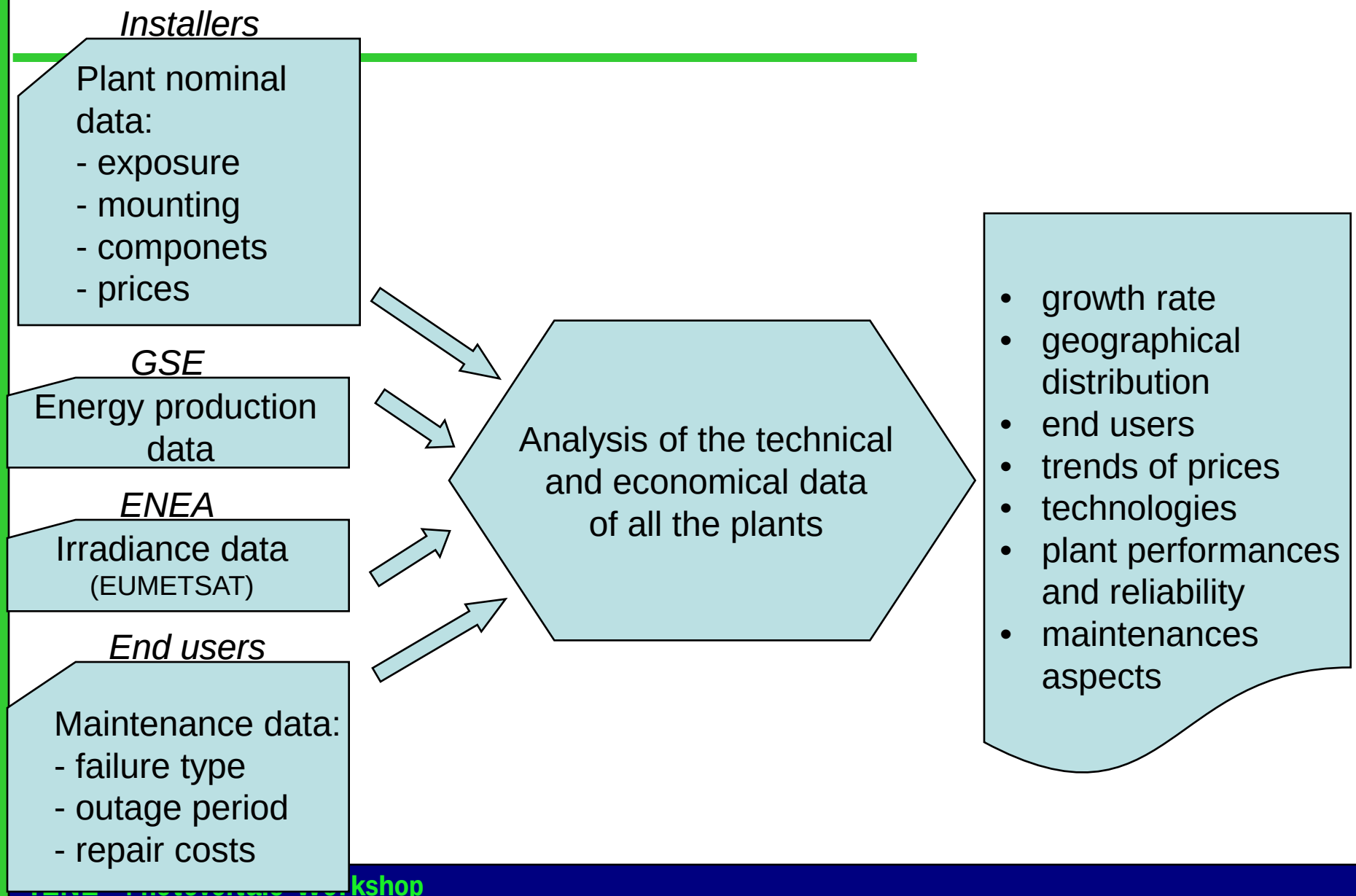
MONITORING ACTIVITIES

- ENEA has been requested by the Ministry of Industry to monitoring the “Conto energia” Programme

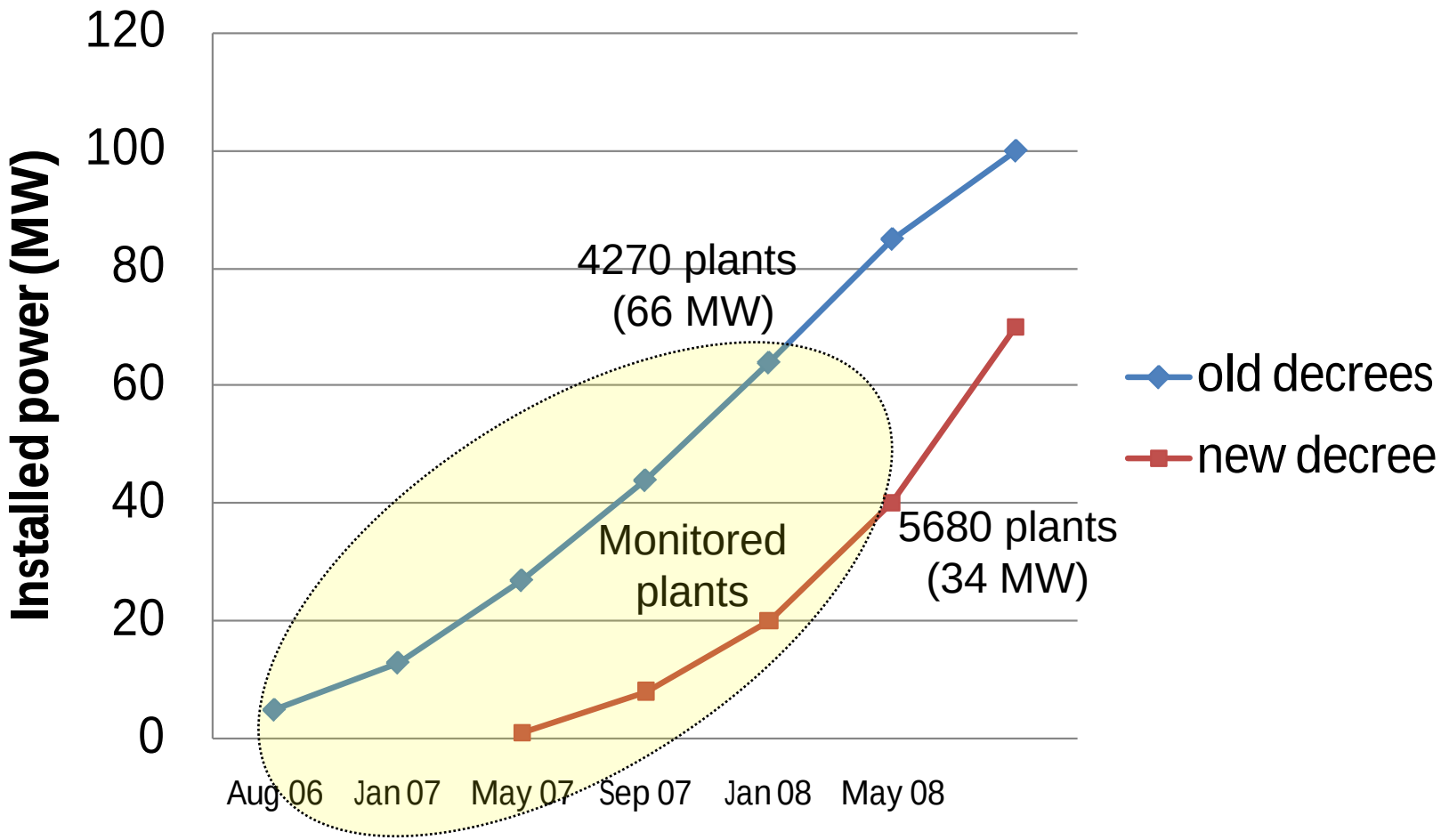
- The monitoring is carried out in coordination with GSE in the framework of a dedicated agreement (since Nov. 2007)

- The activities are articulated in three main lines:
  - Evaluation of the programme
  - Detailed performance analysis of plants and components
  - Monitoring of industrial and research initiatives

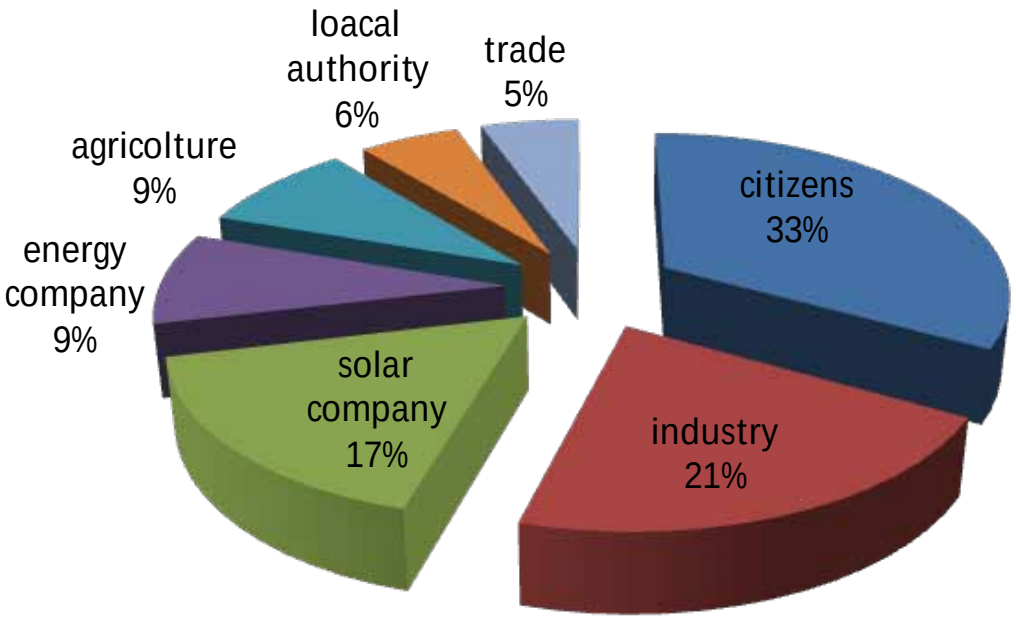
EVALUATION OF THE PROGRAMME



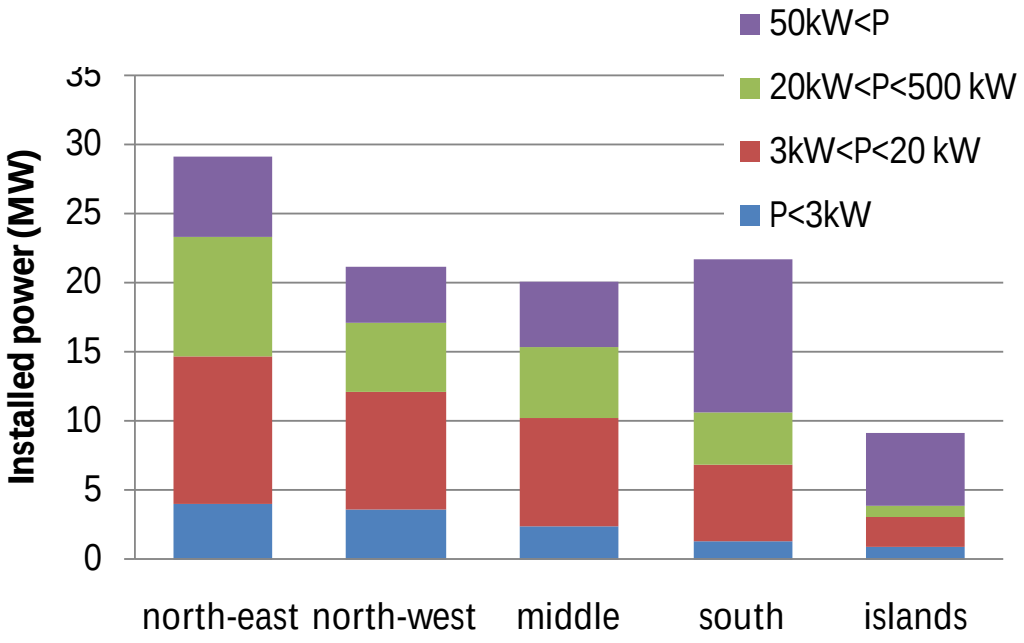
GLOBAL MONITORING



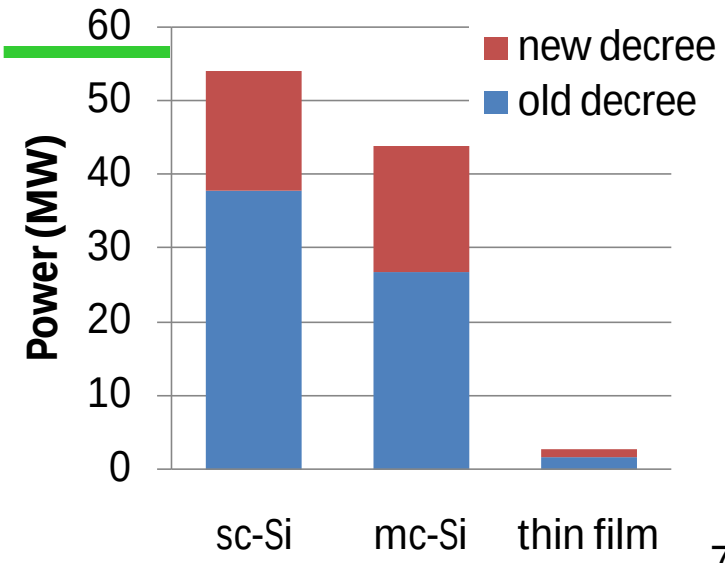
END USERS



GEOGRAPHICAL DISTRIBUTION

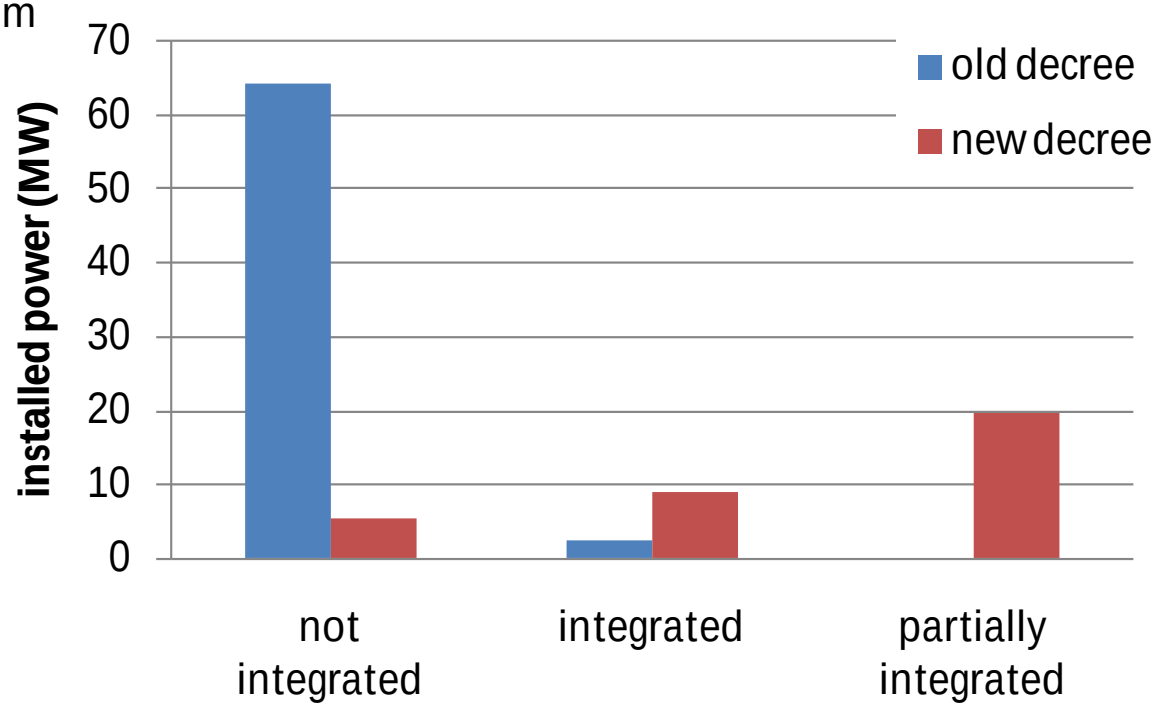


TECHNOLOGY AND INTEGRATION

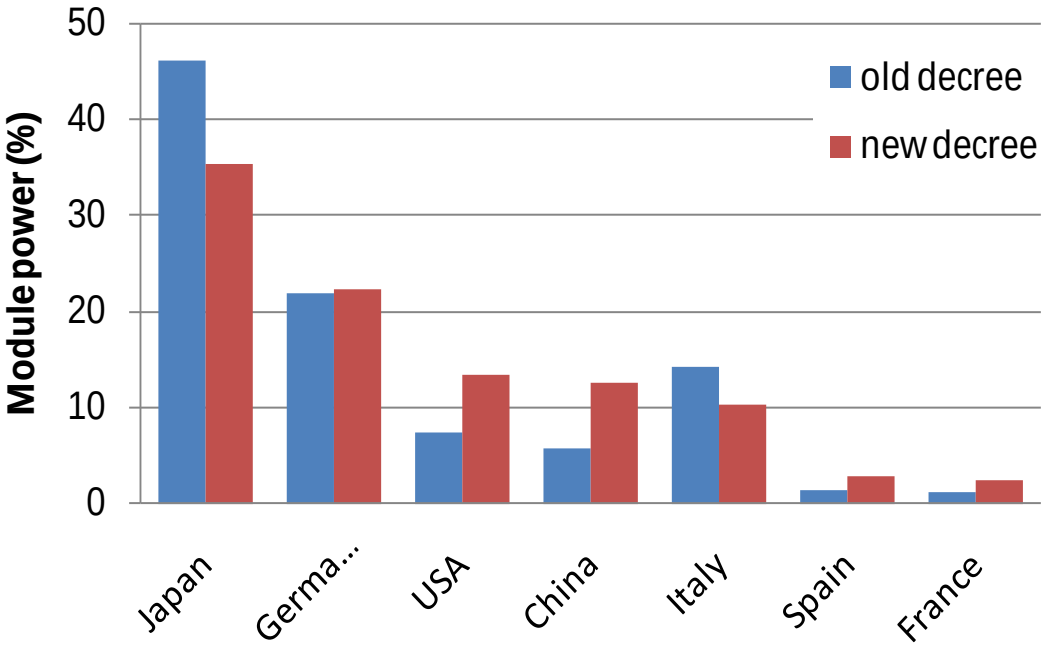


MODULE TECHNOLOGY

BUILDING INTEGRATION DISTRIBUTION

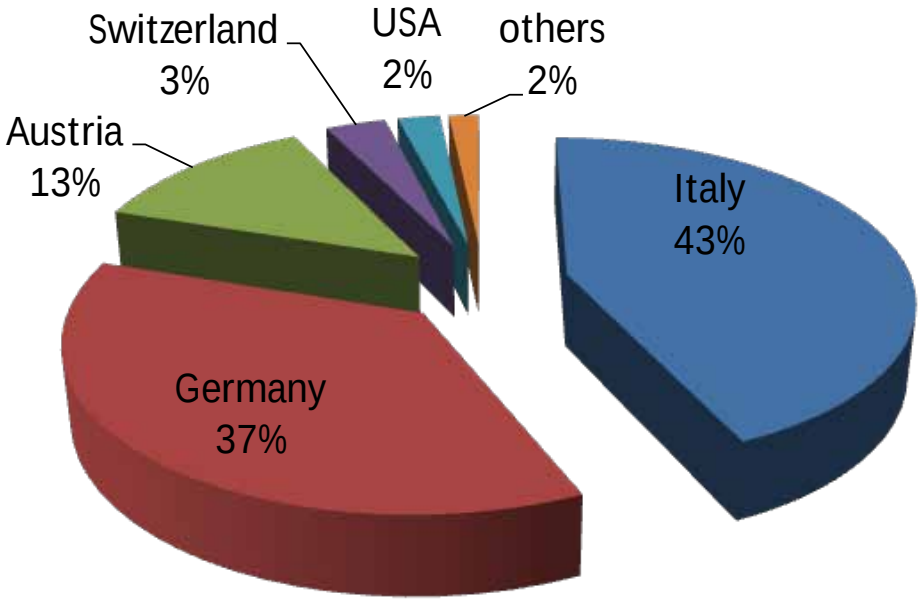


COMPONENT ORIGIN

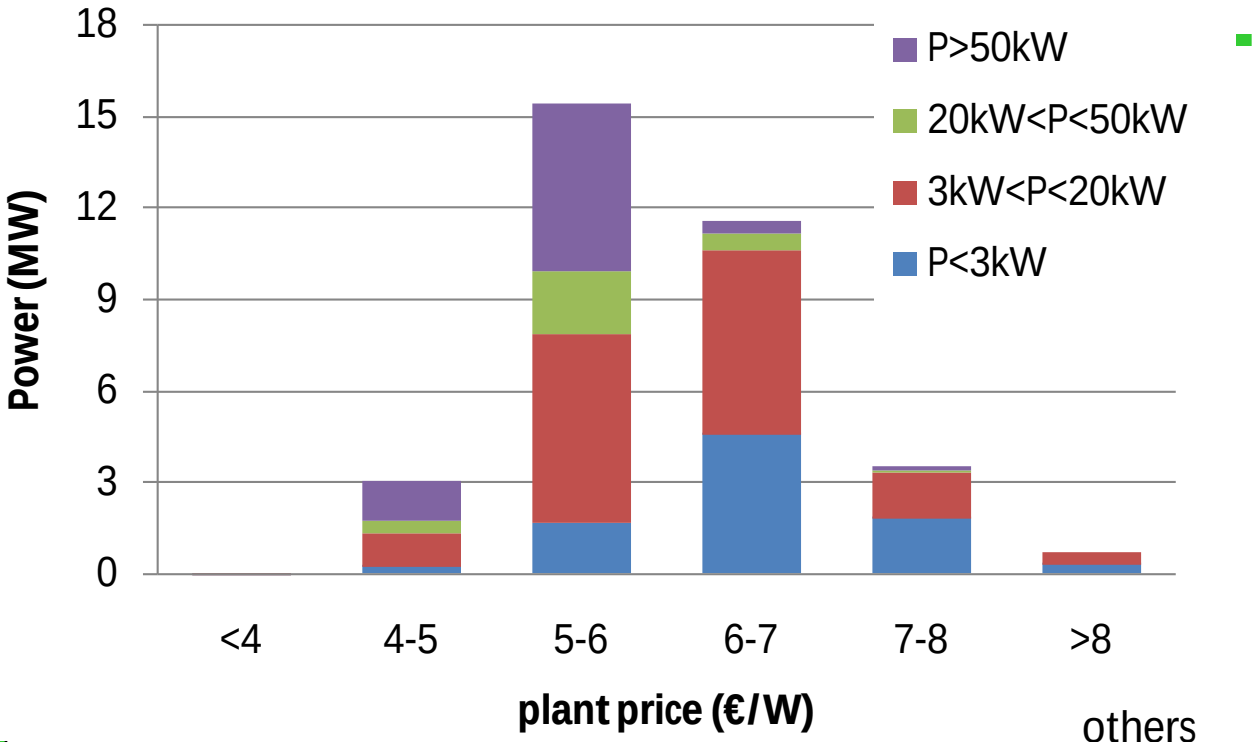


MODULE

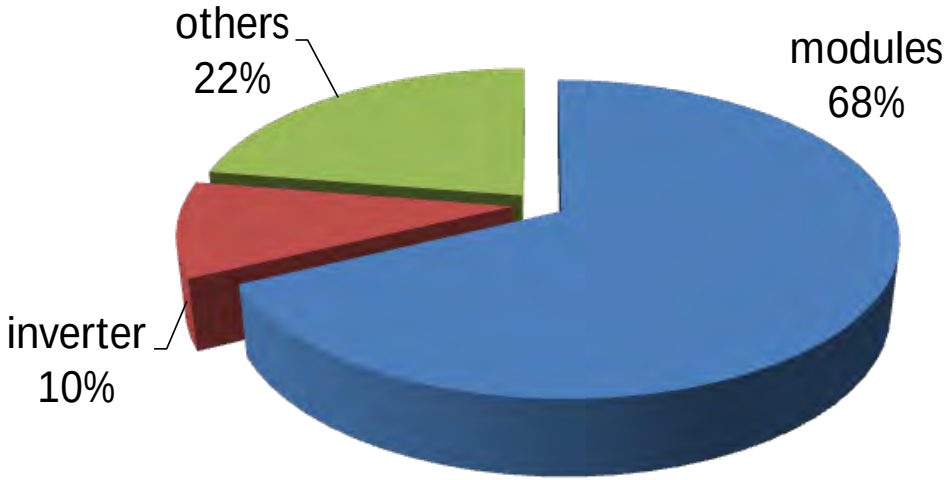
INVERTER



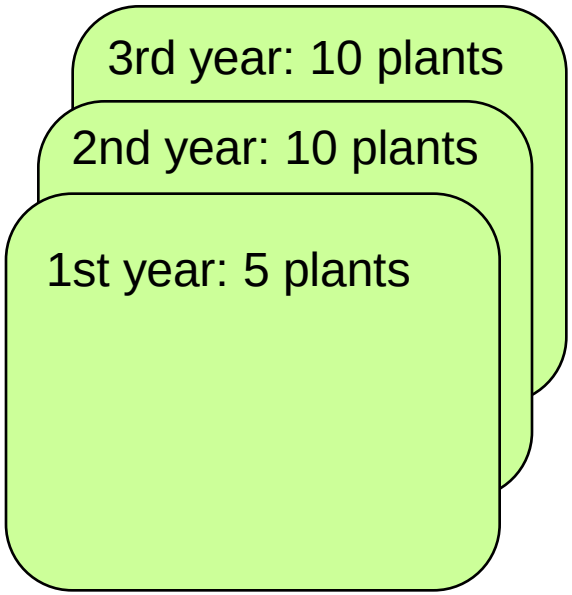
PRICE OF SYSTEMS



AVERAGE SHARE OF PRICES



DETAILED PERFORMANCE ANALYSIS OF PLANTS AND COMPONENTS



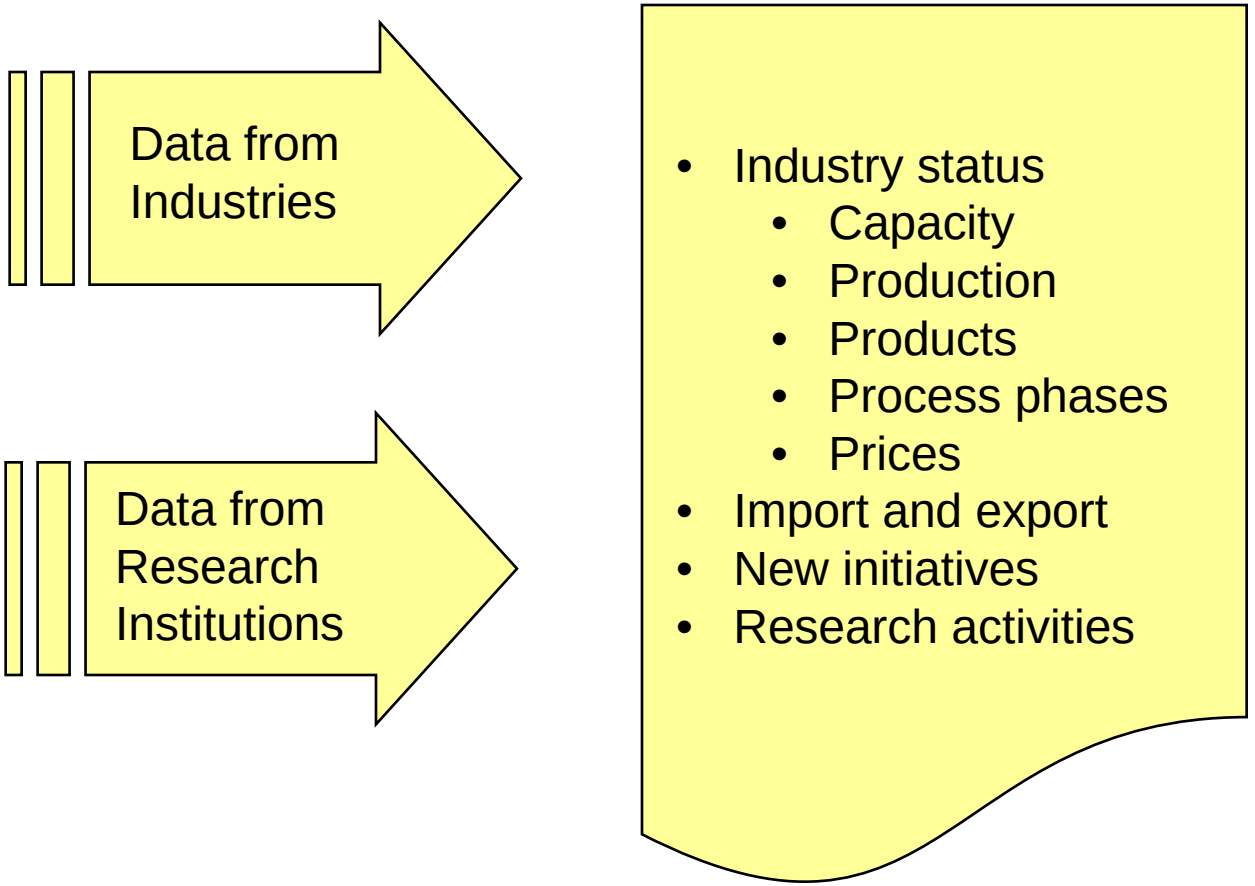
Data acquisition and trasmission systems (IEC 61724)

- Indices of performance evaluation
  - Yields
  - Performance ratio
  - efficiencies
- Comparisons among different
  - technologies
  - mountings
  - exposures

MONITORED PLANTS

Plant locality	nominal power (kW)	system mounting
Milan	20	sloped roof
Rome	20	glass roof
Venice	17	two axis tracking
Ragusa	19	flat roof
Brescia	13	facade

MONITORING OF INDUSTRIAL AND RESEARCH INITIATIVES



MODULE MANUFACTURERS IN ITALY

Manufacturer	*Technology*	*2007 Production (MW)*	*2009 expected Capacity (MW)*
Enipower	sc-Si, mc-Si	3	10
Helios t.	sc-Si, mc-Si	8	60
Xgroup	sc-Si, mc-Si	2	85
Solsonica	sc-Si, mc-Si		50
SE Project	sc-Si, mc-Si	25	150
Soluxia	sc-Si, mc-Si	2	5
Renergies	sc-Si, mc-Si	6	60
Solarday	mc-Si	15	45
Pa Sol	sc-Si, mc-Si	1	3
Solarit	sc-Si		5
Elettrosun	sc-Si, mc-Si	2	2
Gloabal S.	sc-Si	8	12
Total		72	487

NEW INDUSTRIAL INITIATIVES

- Poly silicon
  - Three new company (Estelux, Silfab and Xgroup) have announced an annual total capacity of about 10,000 t/y by the end of 2010

- Thin films
  - Ministry of Environment and Lombardy Region have promoted the development of a pilot plant for CdTe module production (18 MW/y).
  - The manufacturing facility will be realised by Marcegaglia Group by 2008

IMPORT AND EXPORT IN 2007

		Power (MW)	*Value (M€)*	*Total (M€)*
Installed plants		70	430	430
Export of PV products	Modules	61	207	280
	Inverters	140	73	
Import of PV products	Wafers	13	12	340
	Cells	59	107	
	Modules	59	200	
	Inverters	38	21	
Value of PV business				370

CONCLUSIONS

- PV becomes more and more important in Italy
- Tariffs seem to be adequate for small plant as well as for large plants in the South
- Counting on a growth up to 150 MW in 2008 and of about 200 MW in the following years Italian firms are planning to extend their capacities around 400 MW/y
- Monitoring results are useful
  - Decision makers: for a better tuning of future initiatives
  - Installers and End users: constitute the basic elements for life cycle assessment and pay-back time calculation

Thank you for your attention