



UNIVERSITÀ
DEGLI STUDI
DI TRIESTE



Dipartimento di
Ingegneria
e Architettura



INTRODUZIONE - FONTI DI ENERGIA Parte 2

Corso di MACCHINE [065IN]
Corso di MACCHINE MARINE [100IN]

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A.A. 2025-2026

Energy consumptions

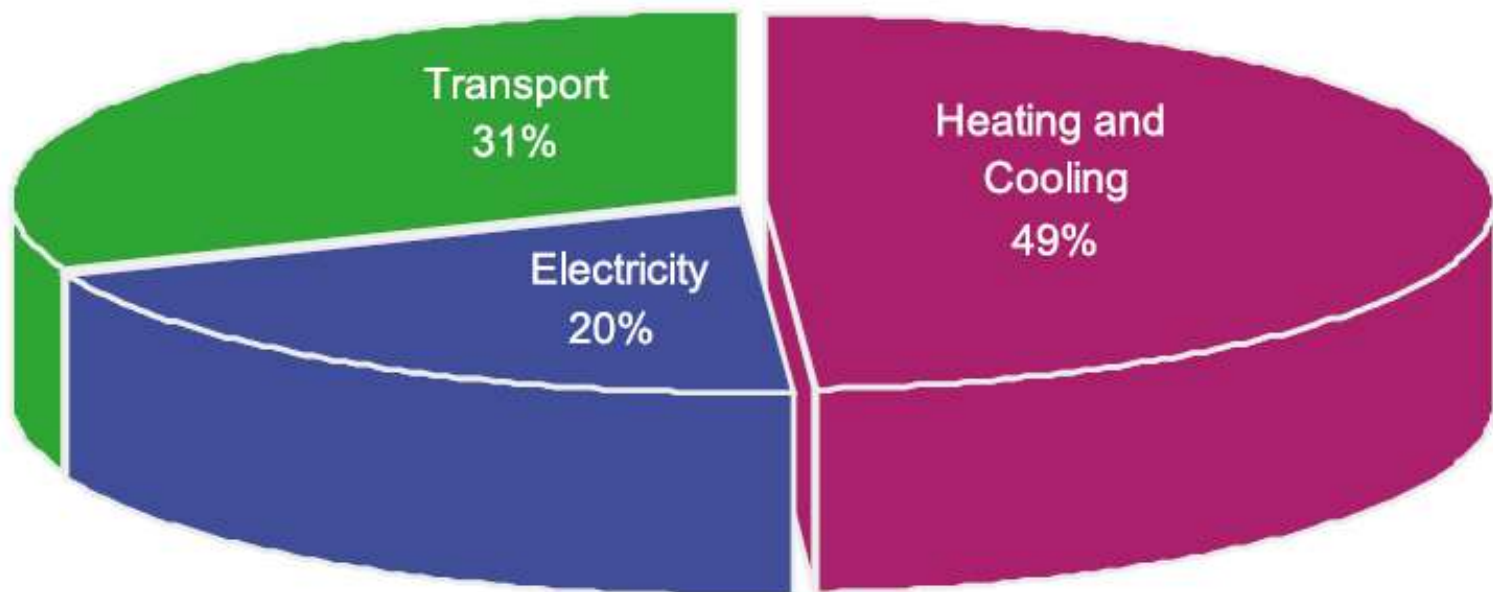
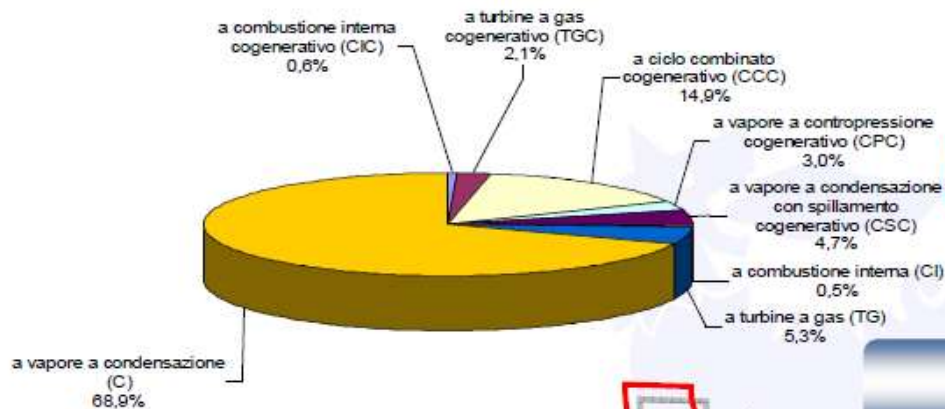


Figure 7: Final Energy demand in the European Union. (Source: EREC, 2006)

Produzione elettrica in Italia dal 1999 al 2008

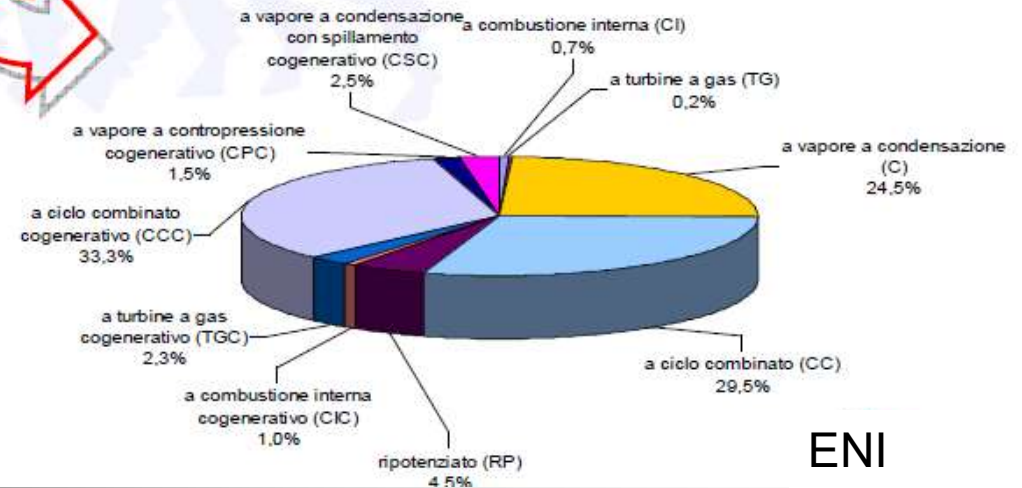
Produzione totale 208.481 GWh



► Largo utilizzo del **Ciclo Rankine** – vapore a condensazione

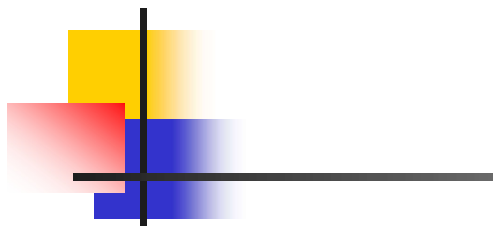
► Limitate applicazioni **TG** e **cicli combinati cogenerativi**

Produzione totale 264.743 GWh



► Forte espansione del **ciclo combinato** sia **cogenerativo** che a **condensazione**

► **Repowering** ed interventi di **efficientamento** del parco esistente



Producers, net exporters and net importers of electricity



Producers*	TWh	% of world total
People's Rep. of China	4 716	21.3
United States	4 327	19.6
Russian Federation	1 053	4.8
India	1 052	4.8
Japan	1 043	4.7
Canada	637	2.9
Germany	602	2.7
France	557	2.5
Brazil	532	2.4
Korea	520	2.4
Rest of the world	7 087	31.9
World	22 126	100.0

2011 data

Net exporters	TWh
France	56
Paraguay	46
Canada	37
Russian Federation	23
Czech Republic	17
People's Rep. of China	13
Bulgaria	11
United Arab Emirates	8
Sweden	7
Ukraine	6
Others	58
Total	282

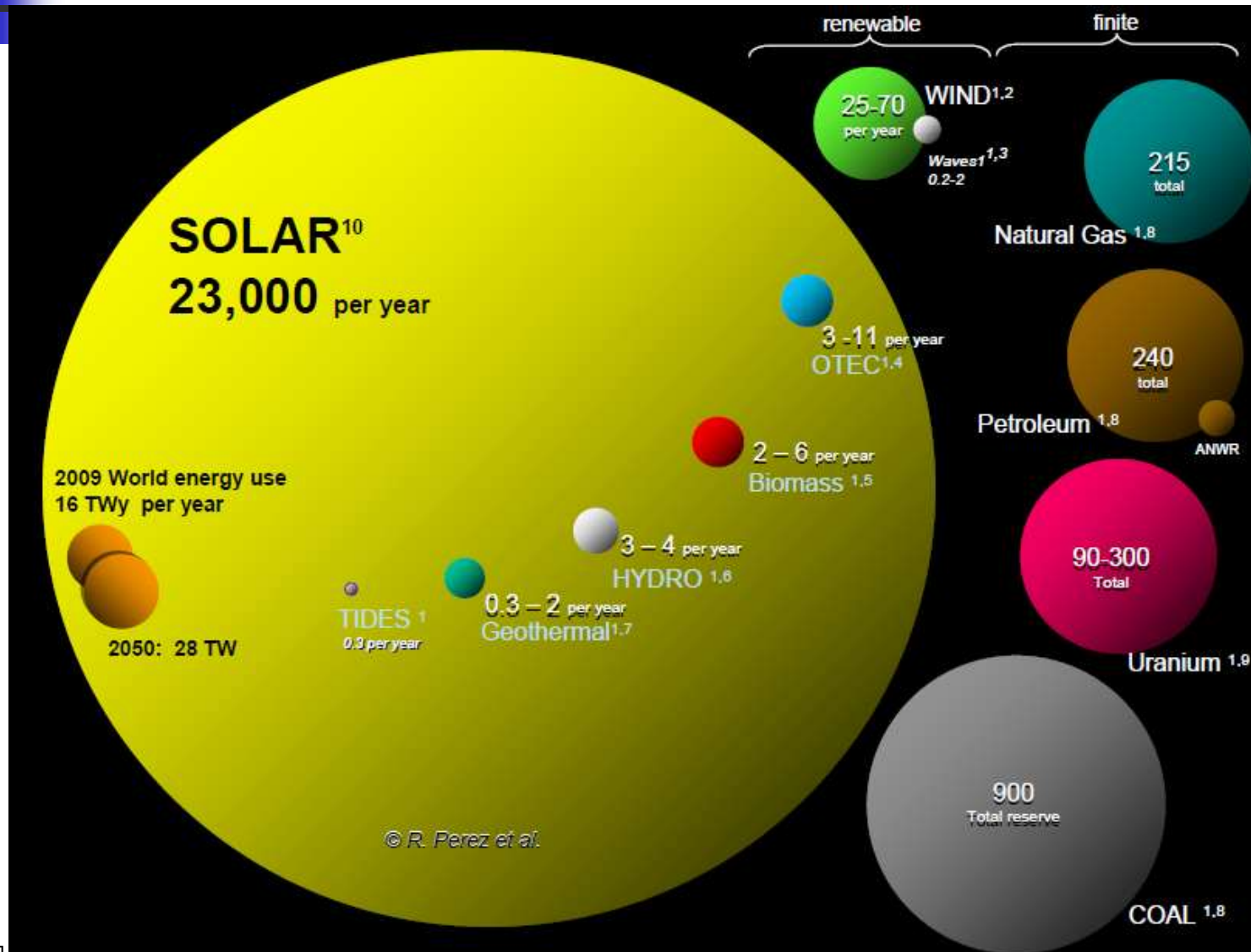
2011 data

Net importers	TWh
Italy	46
United States	37
Brazil	36
Finland	14
Argentina	10
Netherlands	9
Thailand	9
Hong Kong (China)	8
Austria	8
Croatia	8
Others	97
Total	282

*Gross production minus production from pumped storage plants. 2011 data

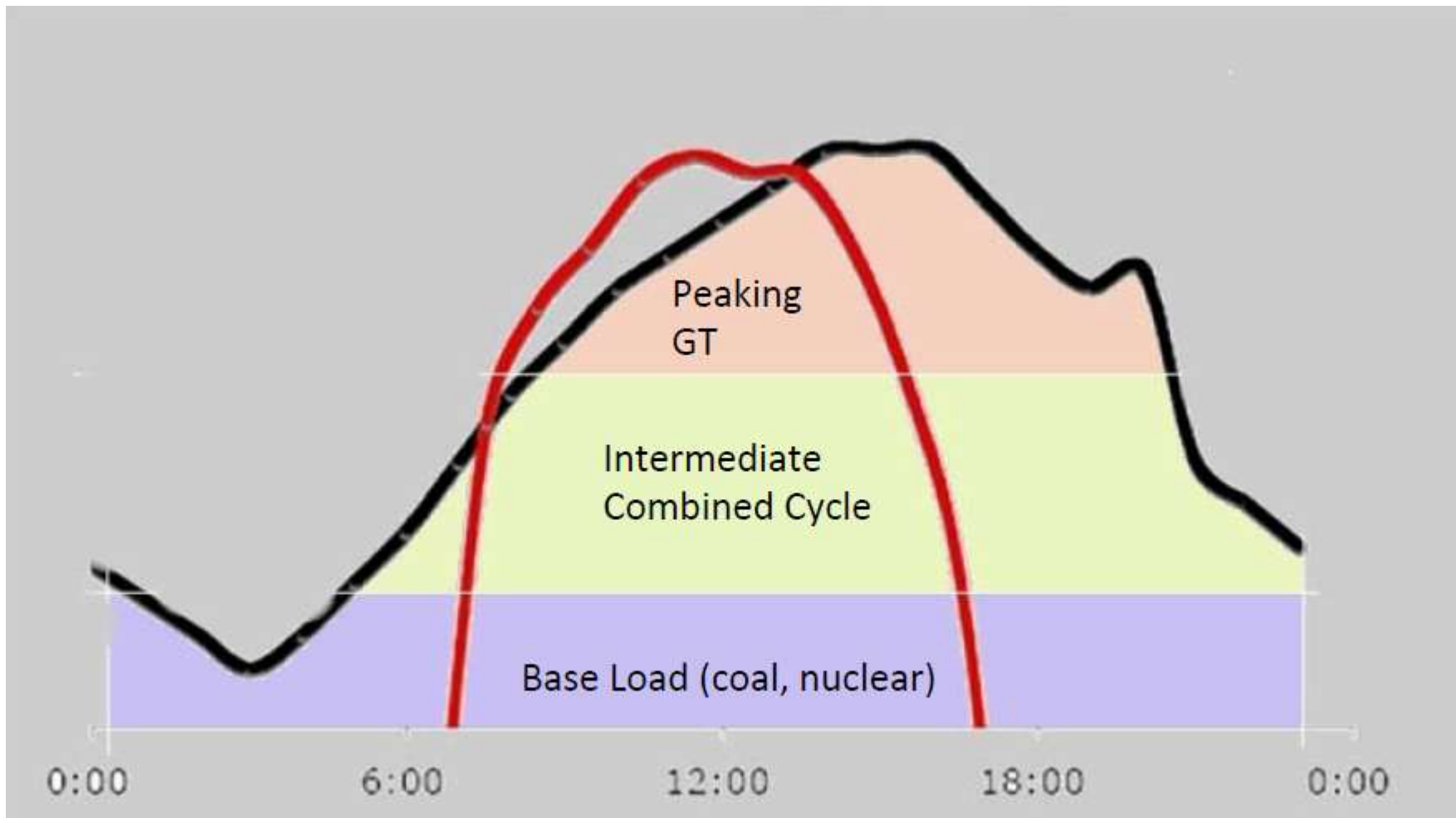
[IEA 2013]

Fonti rinnovabili di energia...

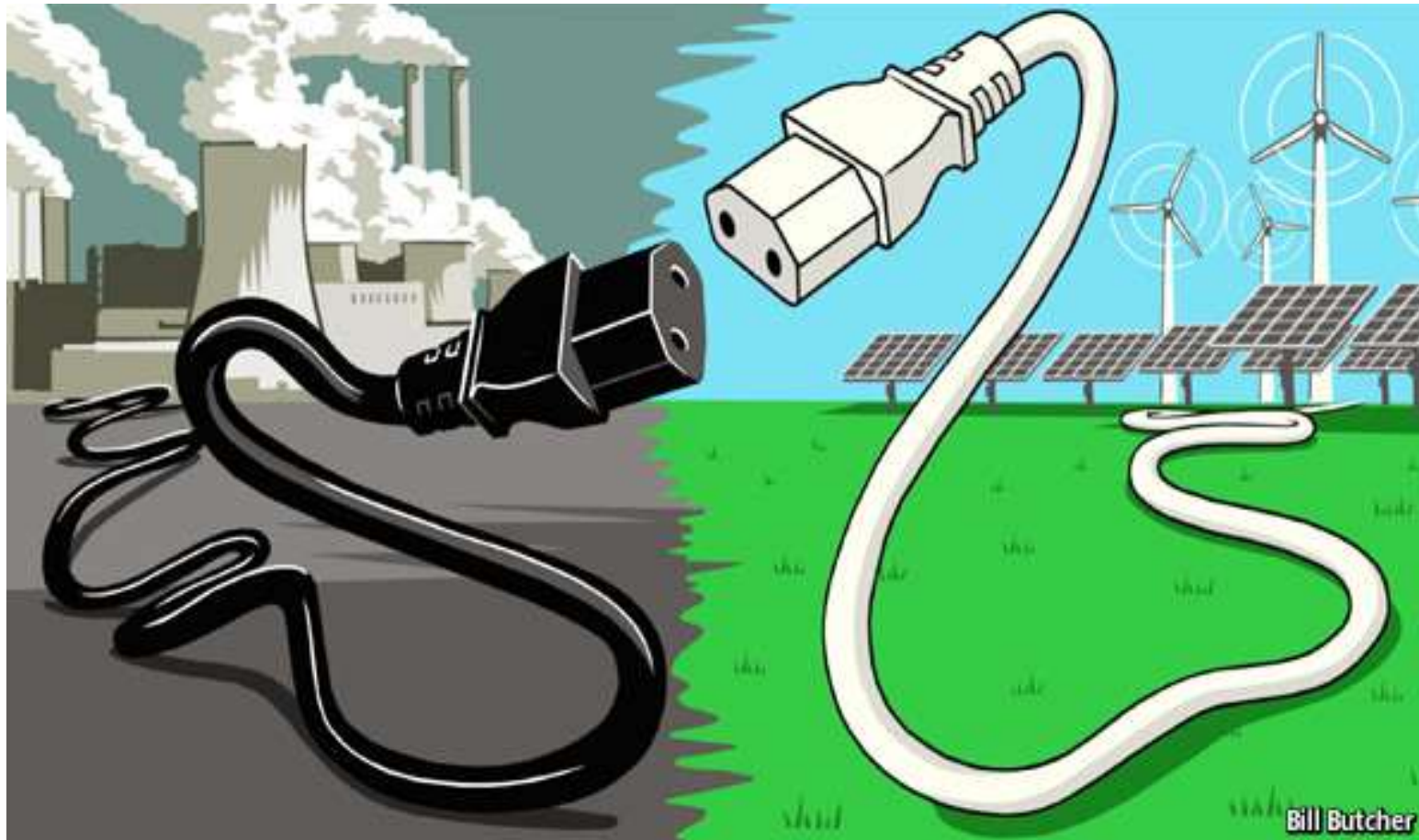


[Richard Perez]

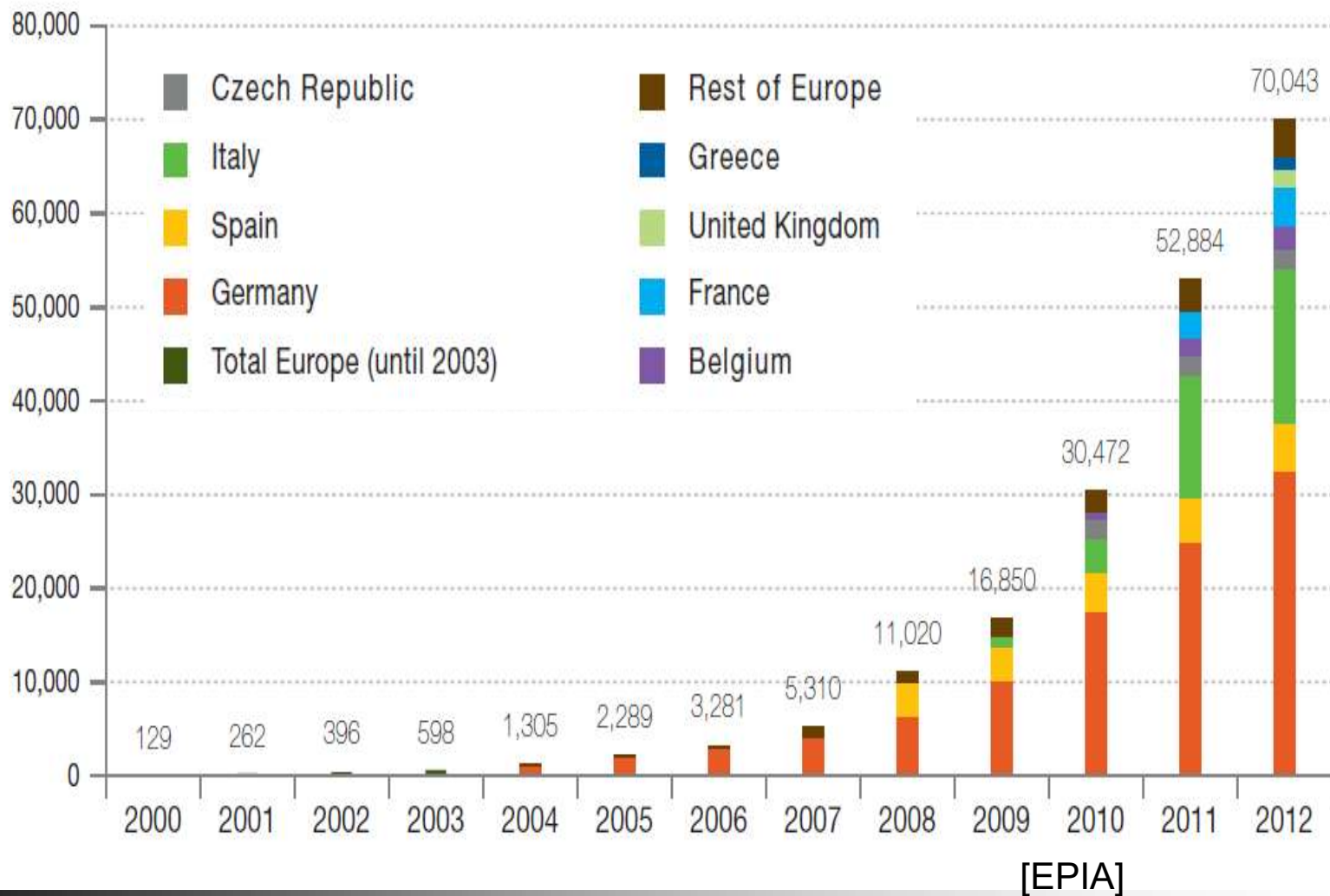
Typical electricity load profile

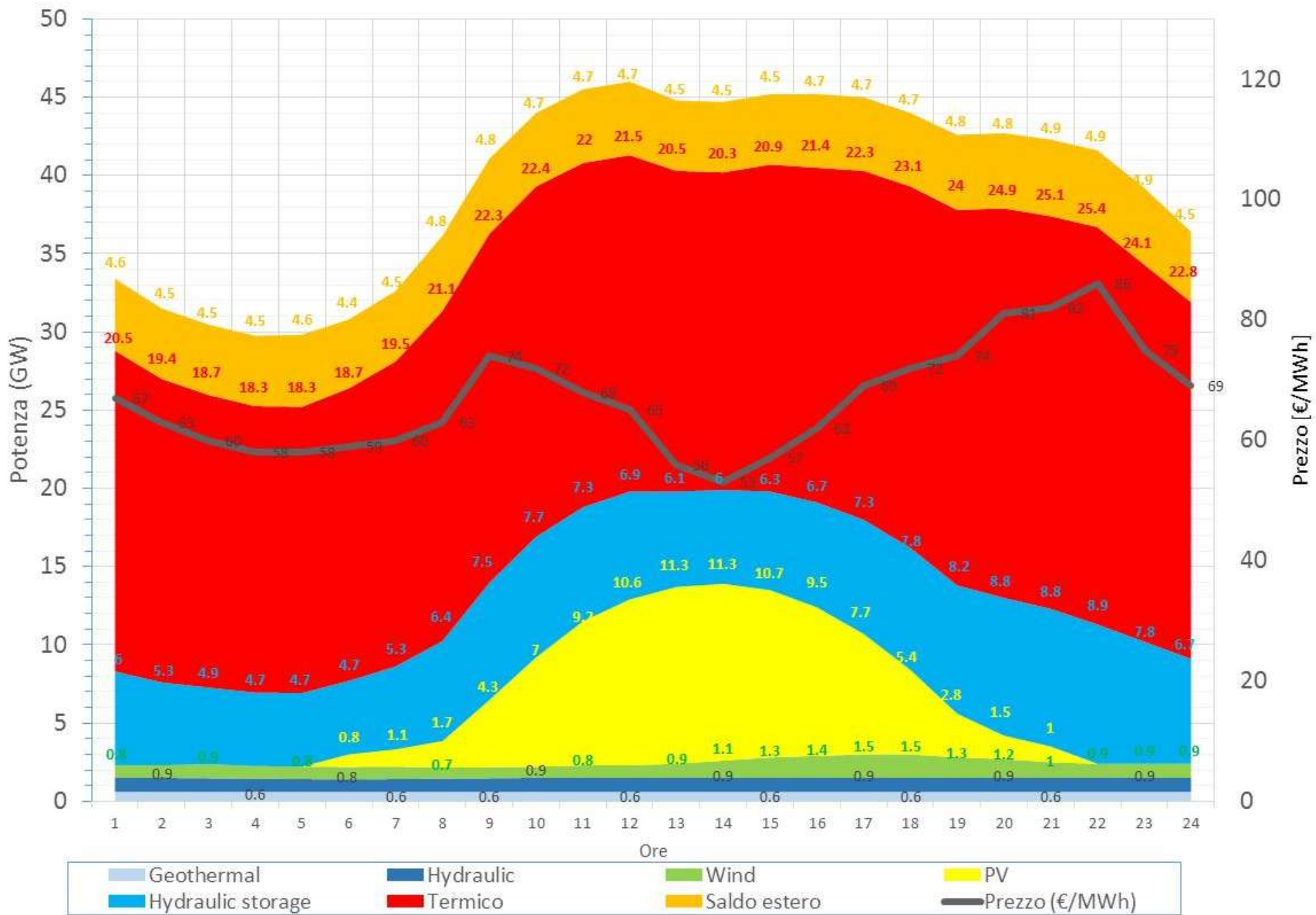


Case study: PV in Italy and Europe



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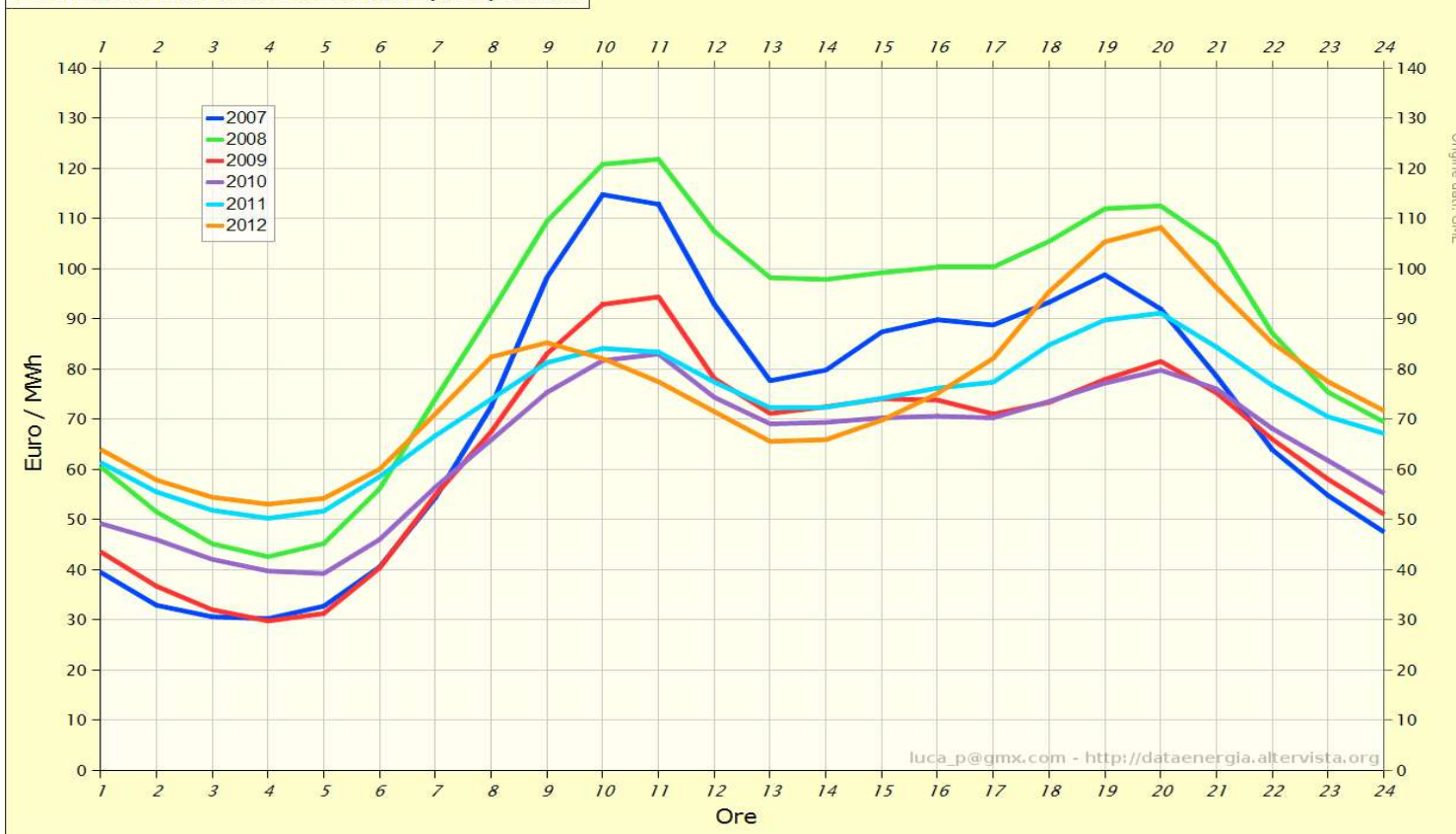
[Elaborated from Terna and <http://dataenergia.altervista.org/>]

Daily load profile



Italy: electricity price

Prezzi medi orari sul mercato elettrico (MGP) in Italia



Il contatore fotovoltaico ✕

[<http://dataenergia.altervista.org/>]

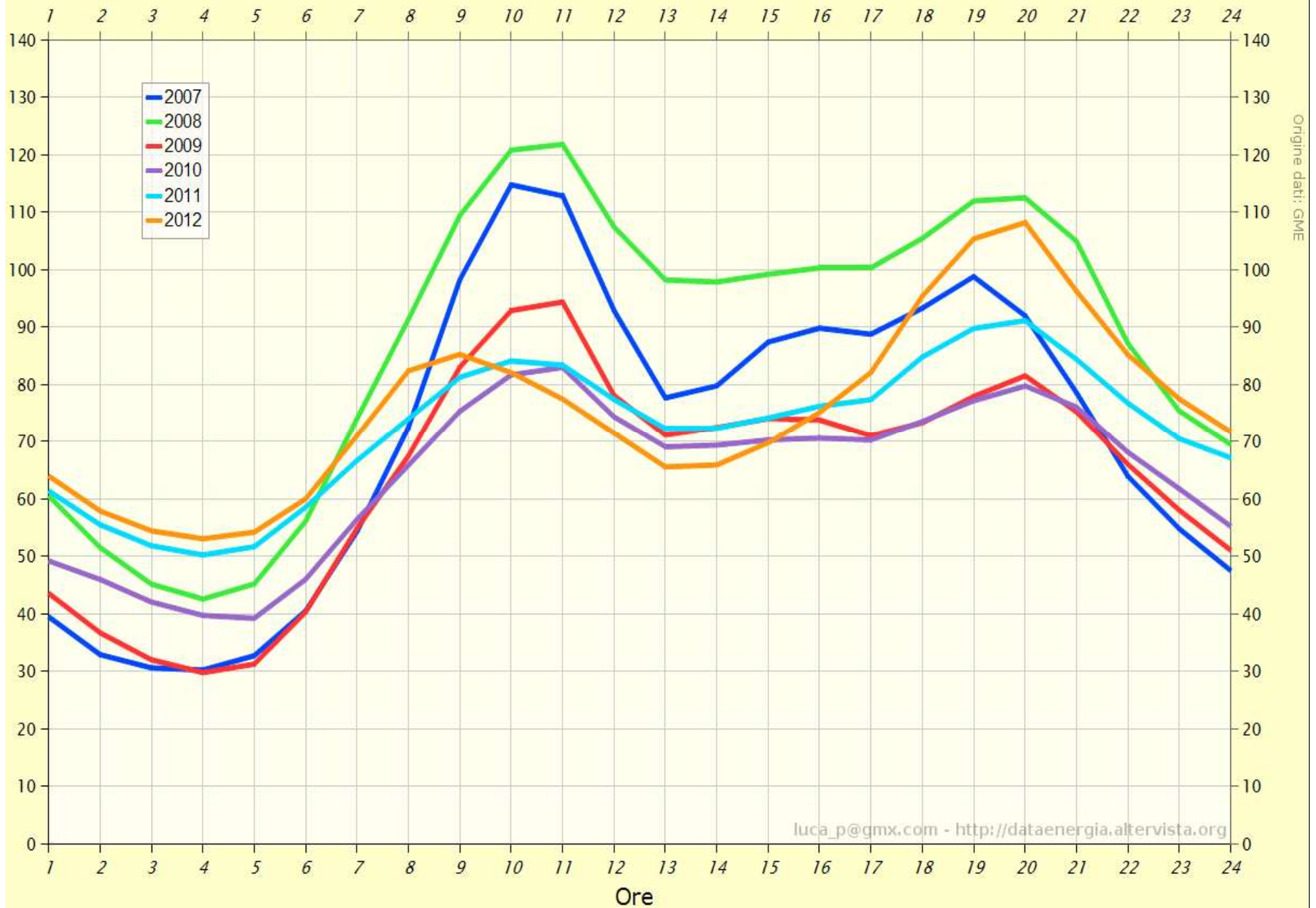
Totale conto energia



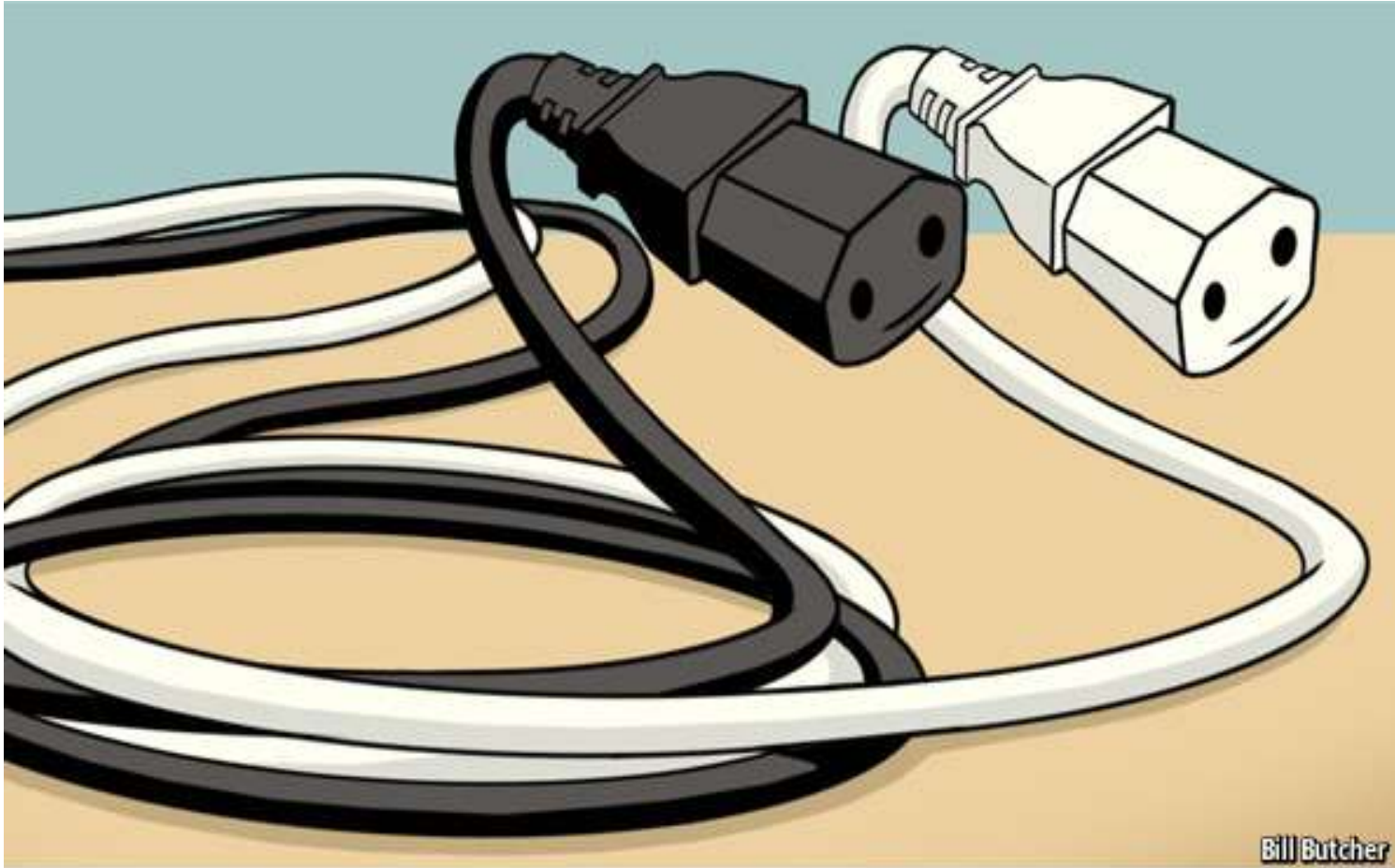
Totale impianti in esercizio
 N.° Impianti: **526.463**
 Potenza (kW): **17.080.255**
 Costo annuo (€): **6.605.824.828**

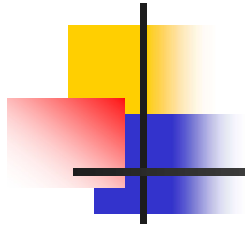
Totale impianti a registro*
 N.° Impianti: **4.779**
 Potenza (kW): **1.136.326**
 Costo annuo (€): **94.183.695**

ZZI medi orari sul mercato elettrico (MGP) in Italia



... possible? When? How?





Grazie per l'attenzione