

**Provincia
di Vercelli**



**Vercelli Provincial Energy Plan:
Guidelines for the implementation of
renewable energy power plants, energy saving and
abatement of greenhouse gases**

**enerscapes project meeting
Vercelli - October 28th - 29th 2010**

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Through the *SAVE programs*, the European Commission has fostered the creation of Regional and Local Energy Agencies.

More than 400 Energy Agencies are presently operating in EU.

Local Energy Agencies were conceived as operating tools of local Administrations, in order to achieve goals related to energy saving, rational use of energy and renewable energy sources utilization and to contribute to the sustainable development framework.



Table listing energy agencies by country, including agency names, acronyms, and brief descriptions of their functions. Countries listed include Albania, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, Ukraine, and others.

This map is based on information provided by energy agencies until 15 July 2010 and presents Intelligent Energy and SAVE Agencies as well as other European local and regional agencies at this time. Please email any updates or corrections to data@managenergy.net to ensure that the information is shown correctly on the Managenergy website and future editions of this map. Full details for all energy agencies and further information on Managenergy events and publications are available through the website www.managenergy.net.

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Main tasks and expertise of Local Energy Agencies

- Fostering of energy efficiency and RUE
- Fostering of RES use
- Support to local sustainable development
- Local energy analysis and planning
- Promotion of energy saving culture
- Technical and procedural information, formation and updating
- Energy certification of buildings
- Collection, analysis and elaboration of energy related data
- Support to Municipalities in energy related issues



A.P.E.V.V. stockholders

- Province of Vercelli
- Municipality of Vercelli
- Chamber of Commerce of Vercelli

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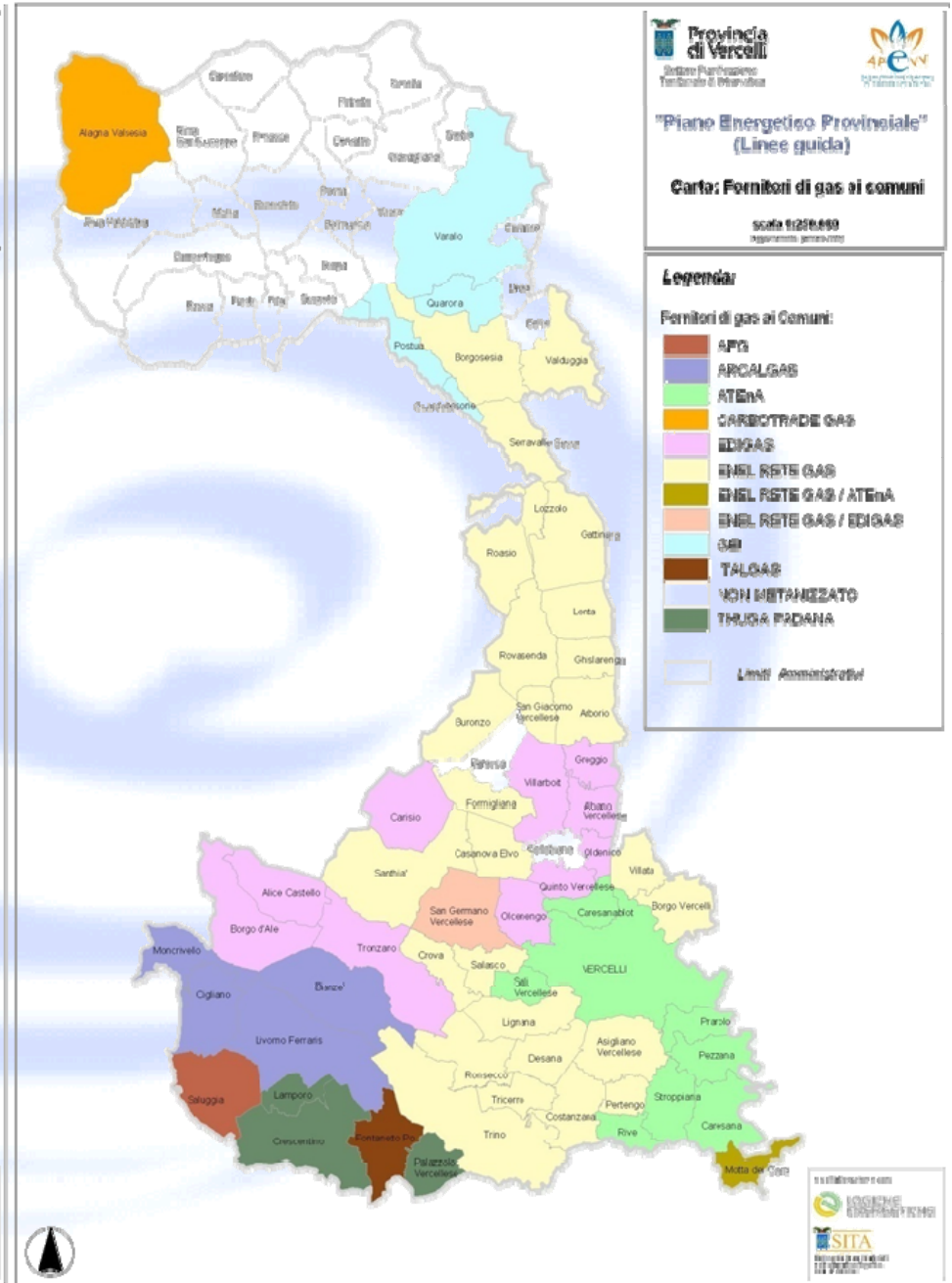
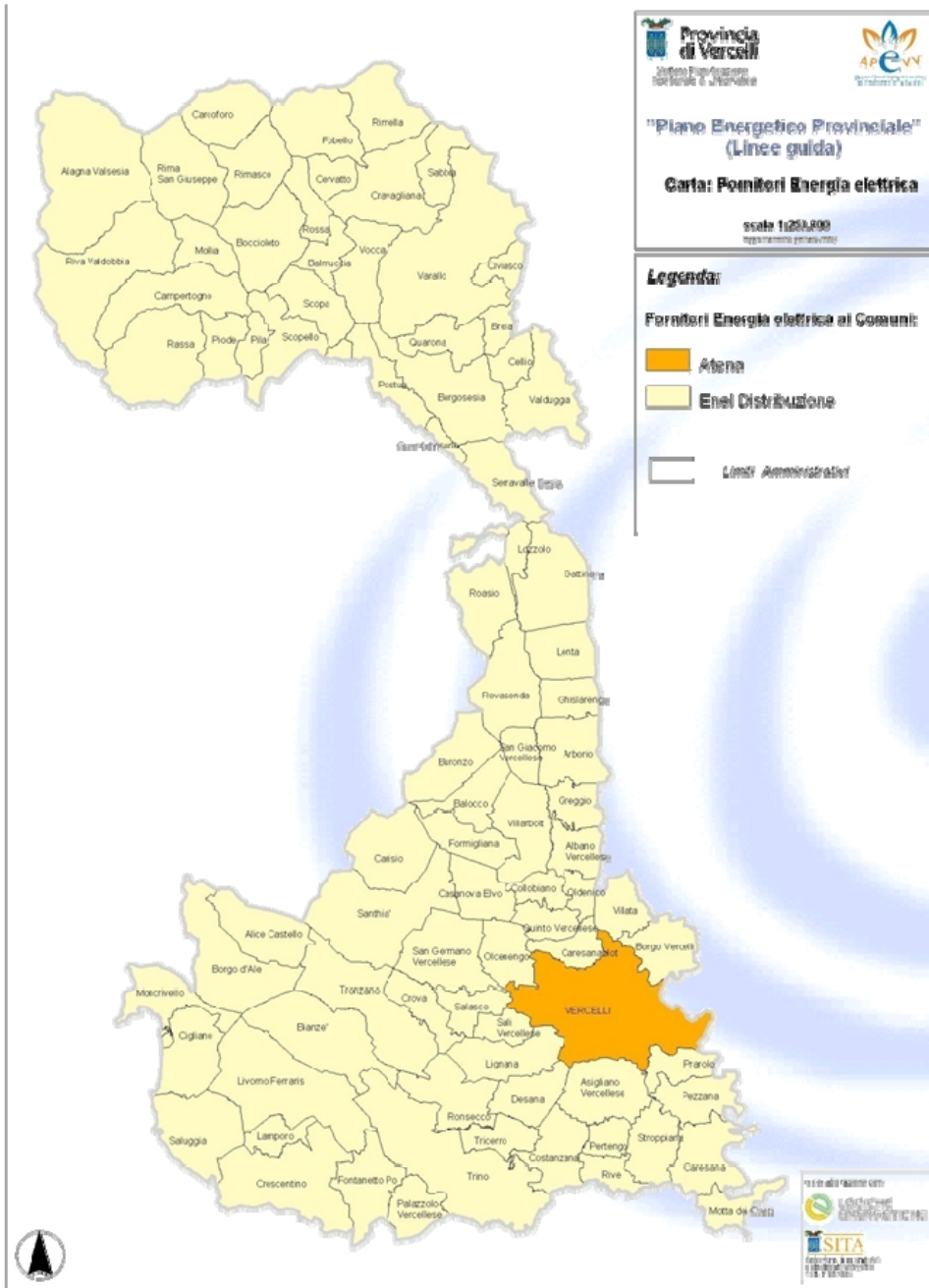
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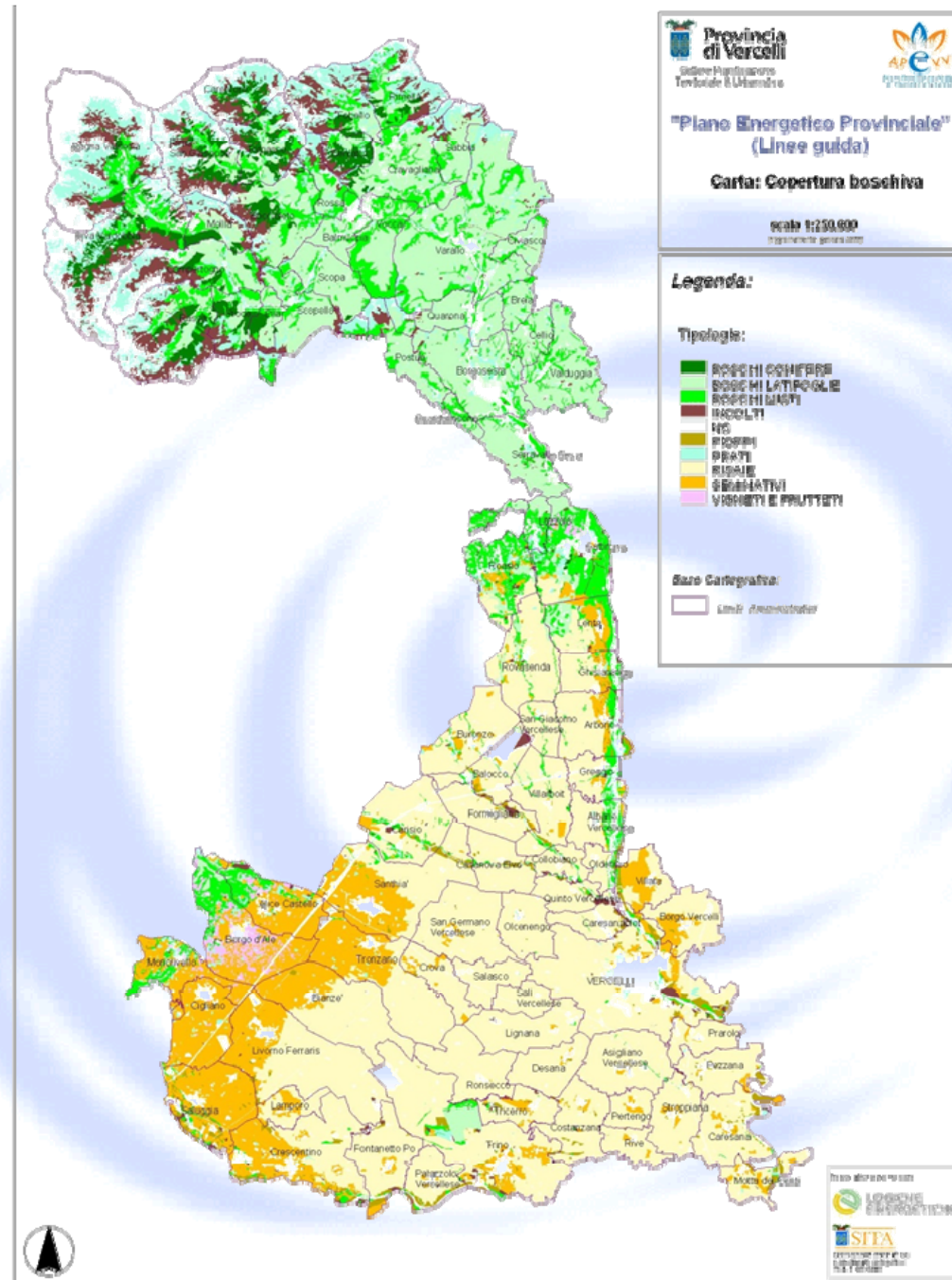
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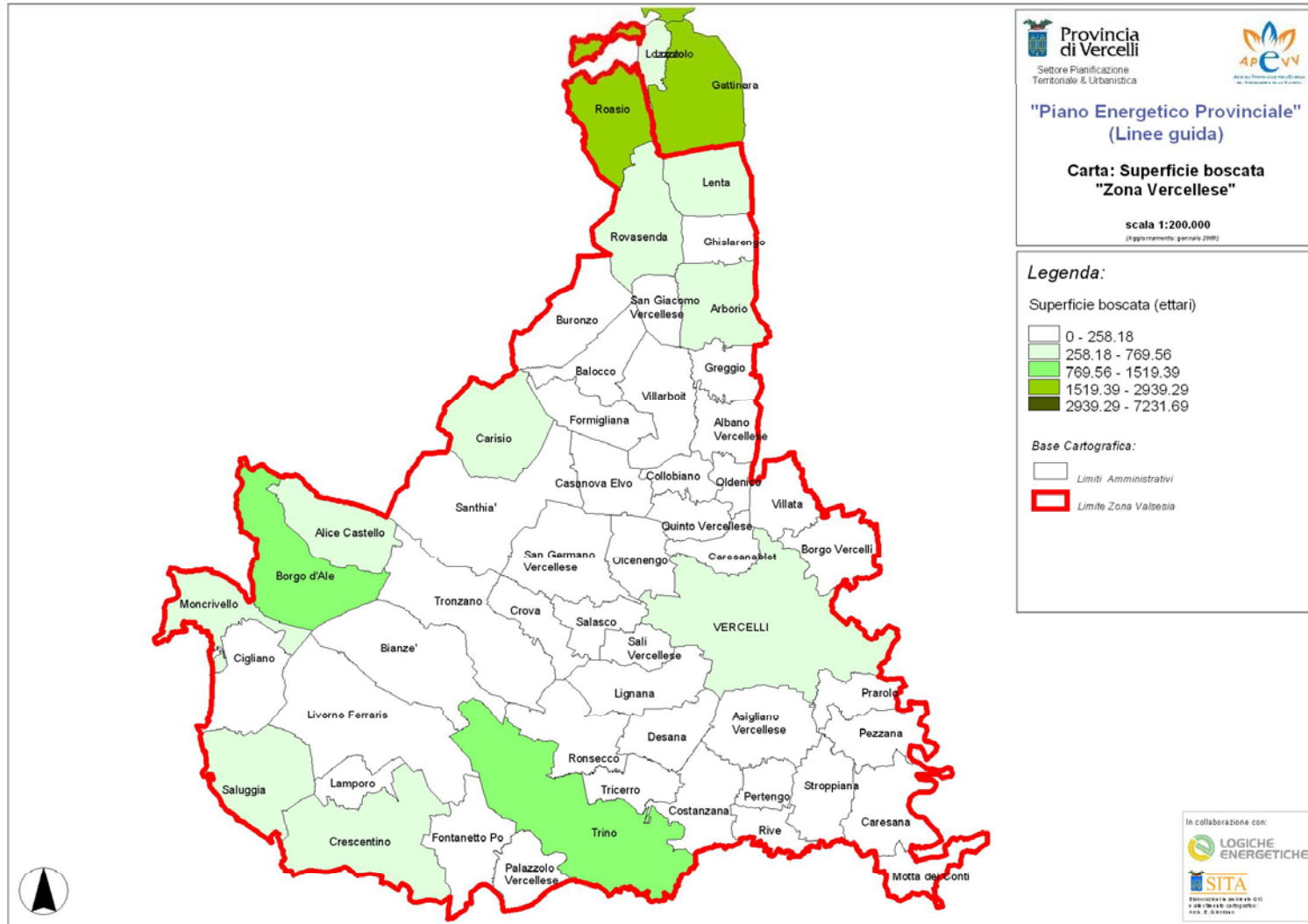
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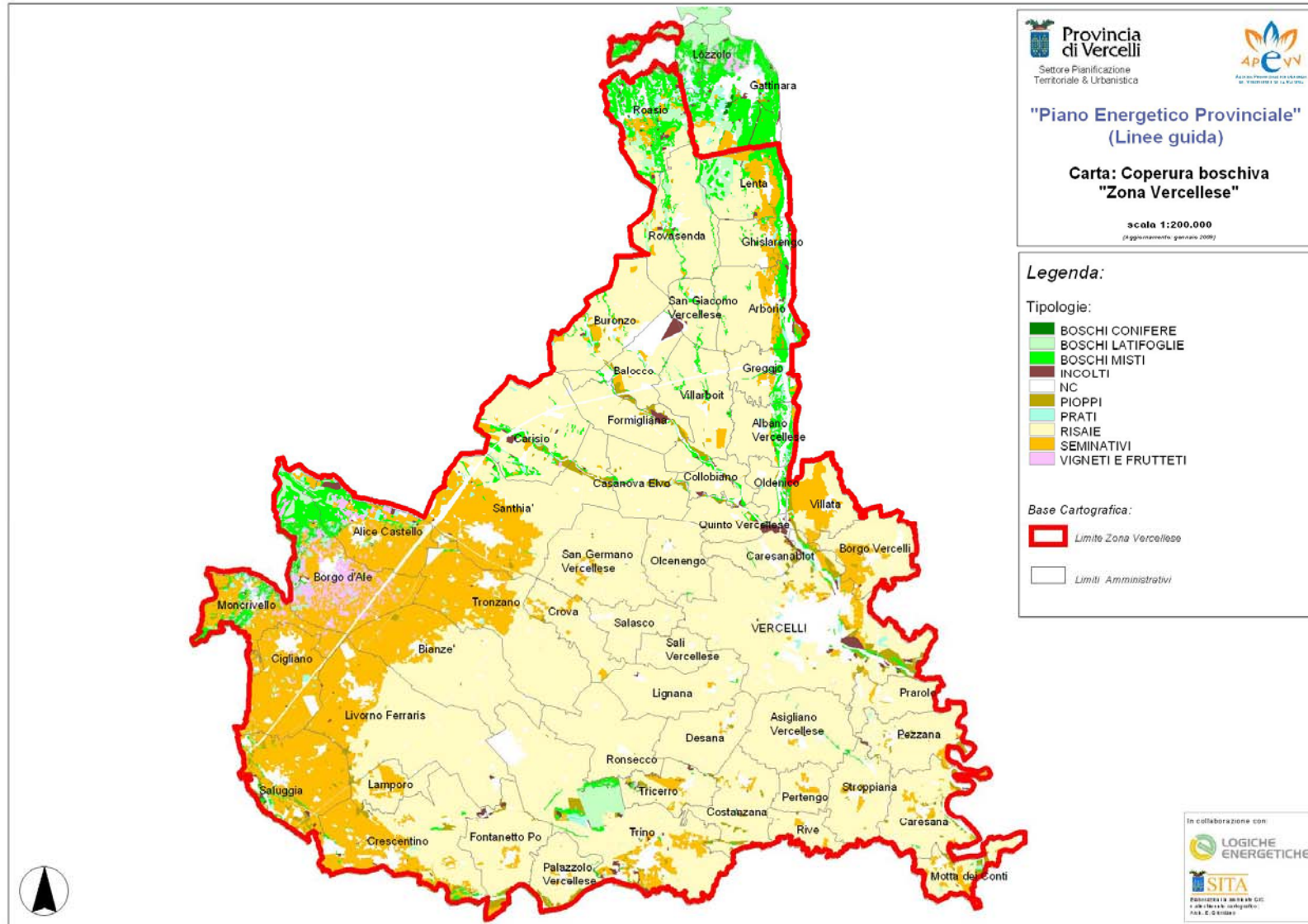
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TIPO DI BOSCO VERCELLESE	SUPERFICIE BOSCATATA TOTALE (Ha)	% TOTALE
CONIFERE		
Abetine		0,00%
Impianti di Conifere	6,05	0,06%
Lariceti e cembrete		0,00%
Pinete di pino uncinato		0,00%
<i>totale conifere</i>	6,05	0,06%
LATIFOGIE		
Castagneti	211,34	2,18%
Faggete		0,00%
Impianti di latifoglie di pregio	52,36	0,54%
Querceti di rovere	260,77	2,69%
Querceti di roverella	3,76	0,04%
Quercu-carpineti	1.533,20	15,81%
<i>totale latifoglie</i>	2.061,43	21,26%
BOSCO MISTO		
Acero-tiglio-frassineti	33,41	0,34%
Alneti planiziali e montani	98,01	1,01%
Boscaglie pioniere di invasione	260,49	2,69%
Formazioni legnose riparie	485,64	5,01%
Impianti indifferenziati	18,93	0,20%
Peccete		0,00%
Rimboschimenti	134,59	1,39%
Robinieti	4.116,76	42,45%
<i>totale boschi misti</i>	5.147,84	53,08%
PIOPPETI	2.482,22	25,60%
TOTALE	9.697,54	100,00%

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Provincia di Vercelli
Settore Pianificazione Territoriale e Urbanistica

"Piano Energetico Provinciale"
(Linee guida)

Carta: Coperura boschiva
"Zona Vercellese"

scala 1:200.000
(aggiornamento gennaio 2009)

Legenda:

Tipologie:

- BOSCHI CONIFERE
- BOSCHI LATIFOGIE
- BOSCHI MISTI
- INCOLTI
- NC
- PIOPPI
- PRATI
- RISAIIE
- SEMINATIVI
- VIGNETI E FRUTTETI

Base Cartografica:

- Limite Zona Vercellese
- Limiti Amministrativi

In collaborazione con

LOGICHE ENERGETICHE

SITA
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E COMUNICAZIONE INTEGRATA
P.A.S. E.C. 010101

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Rice Husk potential estimate

Literature data:

Production of rice husks: 20% of the production of raw rice (12 - 16 q / ha), calorific value of 13.8 MJ / kg.

Production of rice husks equal to 10 to 20 q / ha; calorific value of 15 MJ / kg with moisture in the range 10-15%.

In assessing the energy potential of rice husk in the Province, the following values were used:

- Production of rice husks = 10 q / ha.
- Calorific Value of rice husk = 14 MJ / kg.

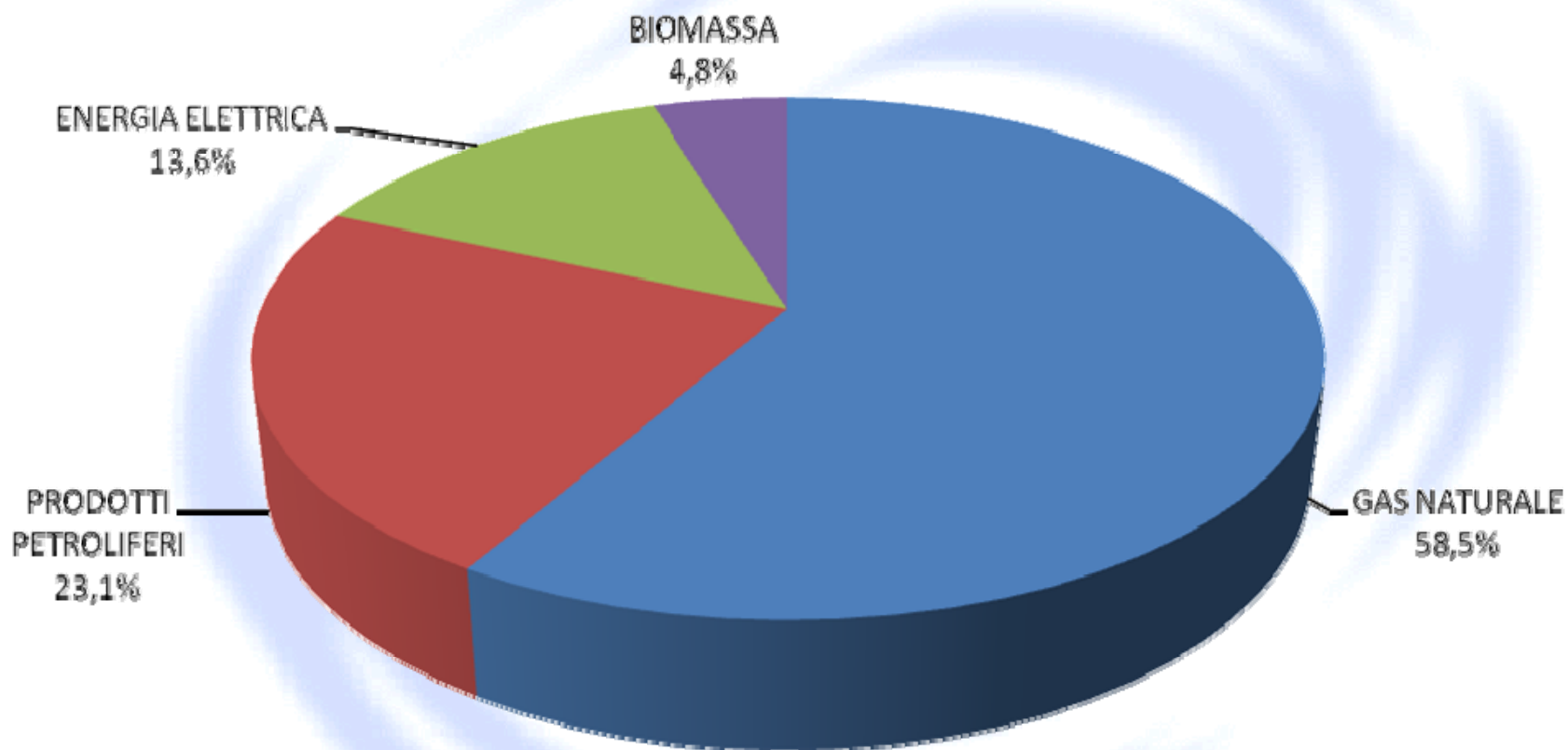
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COMUNE	RISAIE (h)	Produzione teorica folla (q/a)	Potenzialità elettrica (tep)	Potenzialità termica (tep)	Potenzialità elettrica cogen (tep)	Potenzialità termica cogen (tep)
Albano Vercellese	832,71	8.327,08	69,62	194,95	55,70	153,17
Arborio	1.438,49	14.364,88	120,11	336,30	96,09	264,24
Asigliano Vercellese	2.438,69	24.386,89	203,90	570,93	163,12	448,59
Balocco	943,47	9.434,70	78,89	220,88	63,11	173,55
Bianze'	2.708,88	27.088,83	226,50	634,19	181,20	498,29
Borgo Vercelli	1.369,74	13.697,39	114,53	320,67	91,62	251,96
Buronzo	2.060,08	20.600,80	172,25	482,29	137,80	378,94
Caresana	1.842,64	18.426,40	154,07	431,39	123,25	338,95
Caresanablot	828,55	8.285,50	69,28	193,97	55,42	152,41
Carisio	2.267,25	22.672,45	189,57	530,79	151,66	417,05
Casanova Elvo	1.523,43	15.234,27	127,38	356,66	101,90	280,23
Collobiano	710,29	7.102,90	59,39	166,29	47,51	130,66
Costanzana	1.895,86	18.958,56	158,52	443,85	126,81	348,74
Crescentino	2.271,18	22.711,76	189,90	531,71	151,92	417,77
Crova	1.178,60	11.786,00	98,55	275,93	78,84	216,80
Desana	1.587,44	15.874,37	132,73	371,64	106,18	292,00
Fontanetto Po	1.895,79	18.957,87	158,51	443,83	126,81	348,72
Formigliana	1.380,84	13.808,40	115,45	323,27	92,36	254,00
Gattinara	259,86	2.598,60	21,73	60,84	17,38	47,80
Ghislarengo	701,06	7.010,62	58,62	164,13	46,89	128,96
Greggio	624,05	6.240,50	52,18	146,10	41,74	114,79
Lamporo	662,59	6.625,90	55,40	155,12	44,32	121,88
Lenta	556,48	5.564,80	46,53	130,28	37,22	102,36
Lignana	2.132,91	21.329,10	178,34	499,34	142,67	392,34
Livorno Ferraris	3.790,47	37.904,74	316,93	887,40	253,54	697,24
Lozzolo	0,16	1,60	0,01	0,04	0,01	0,03
Motta dei Conti	793,79	7.937,92	66,37	185,84	53,10	146,02
Olcenengo	1.590,11	15.901,08	132,95	372,27	106,36	292,49
Oldenico	456,58	4.565,82	38,18	106,89	30,54	83,99
Palazzolo Vercellese	1.052,74	10.527,43	88,02	246,46	70,42	193,65
Pertengo	742,21	7.422,13	62,06	173,76	49,65	136,53
Pezzana	1.456,35	14.563,46	121,77	340,95	97,41	267,89
Prarolo	1.035,94	10.359,40	86,62	242,53	69,29	190,56
Quinto Vercellese	938,06	9.380,63	78,43	219,61	62,75	172,55
Rive	865,71	8.657,08	72,38	202,67	57,91	159,24
Roasio	354,80	3.546,00	29,65	83,02	23,72	65,23
Runsecco	2.337,89	23.378,94	195,48	547,33	156,38	430,05
Rovasenda	2.422,56	24.225,58	202,55	567,15	162,04	445,62
Salasco	1.143,89	11.438,88	95,64	267,80	76,51	210,41
Sali Vercellese	840,91	8.409,10	70,31	196,87	56,25	154,68
Saluggia	0,00	0,00	0,00	0,00	0,00	0,00
San Giacomo Vercelles	3.719,71	37.197,14	311,01	870,84	248,81	684,23
Santhia'	2.525,31	25.253,14	211,15	591,21	168,92	464,52
Stroppiana	1.617,11	16.171,06	135,21	378,59	108,17	297,46
Tricerro	968,93	9.689,35	80,85	226,37	64,68	177,86
Trino	4.745,59	47.455,93	396,79	1111,01	317,43	872,94
Tronzano	2.355,98	23.559,77	196,99	551,57	157,59	433,37
Vercelli	5.171,93	51.719,30	432,44	1210,82	345,95	951,36
Villarboit	2.131,45	21.314,46	178,21	499,00	142,57	392,07
Villata	645,93	6.459,29	54,01	151,22	43,21	118,82
TOTALE	77.810,78	778.107,80	6.505,92	18.216,57	5.204,73	14.313,02
TOTALE (GWh)			75,65	211,82	60,52	166,43

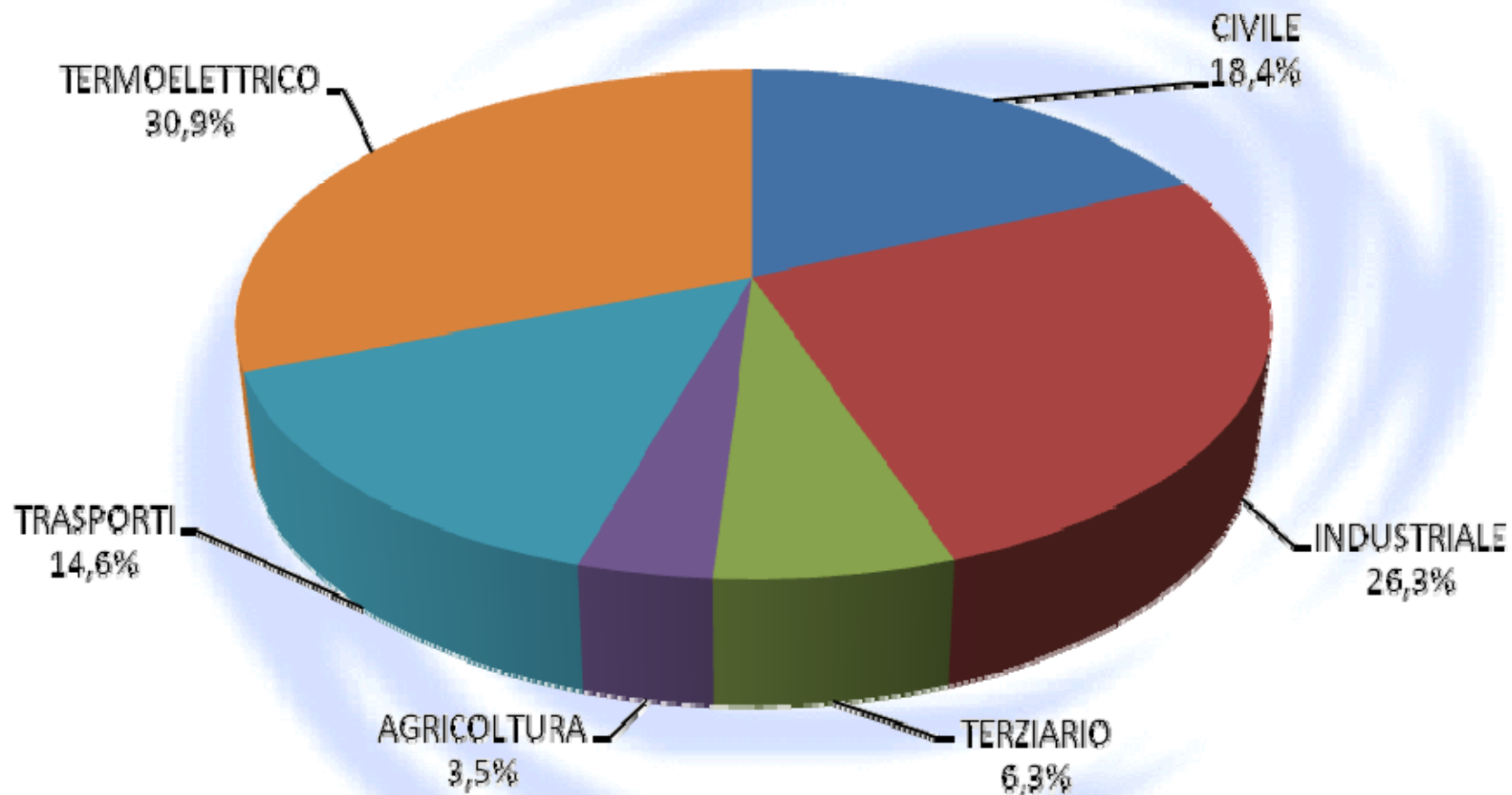


Consumi totali: ripartizione per vettori (2007)



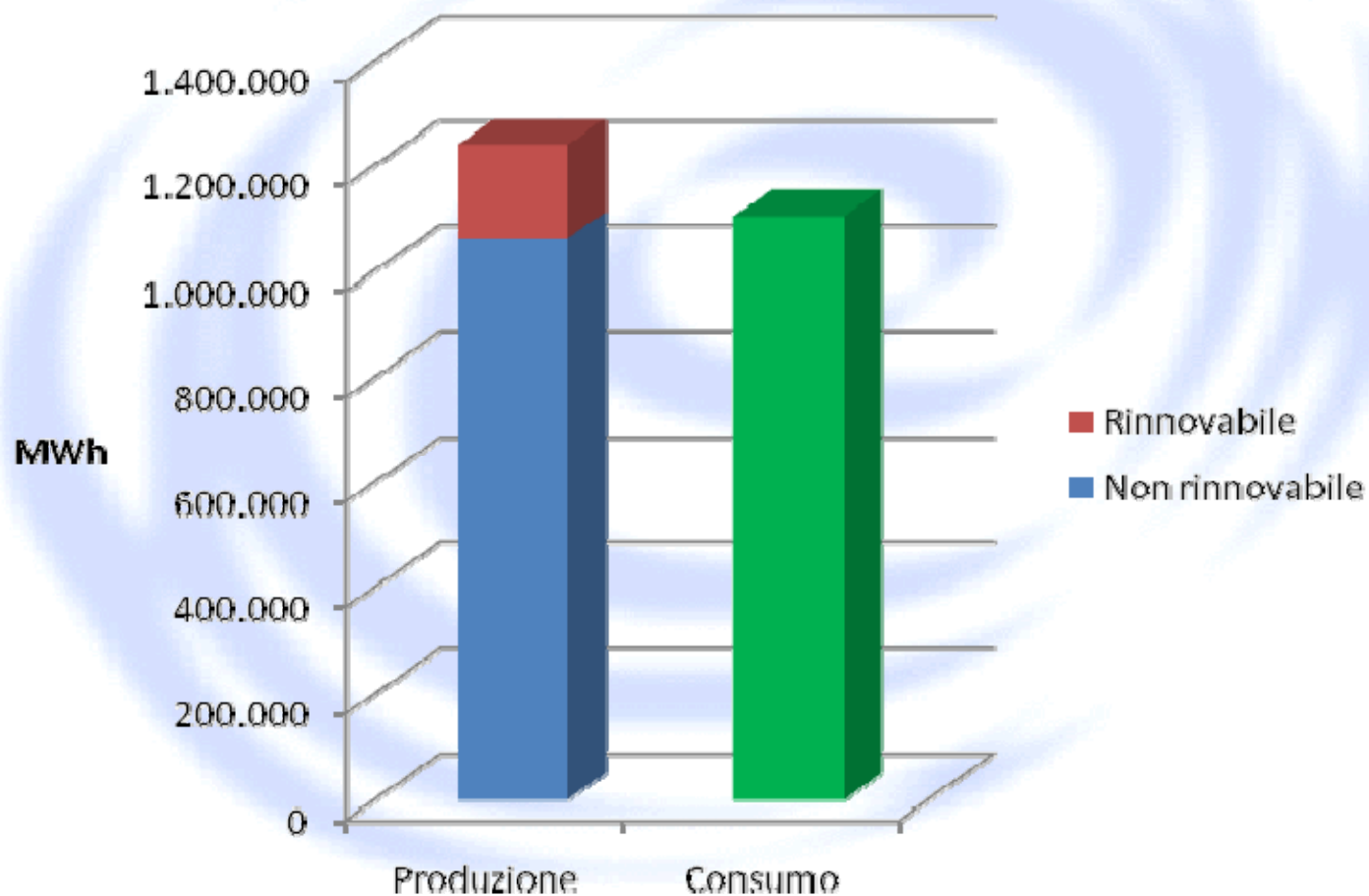


Consumi totali: ripartizione per settori (2007)



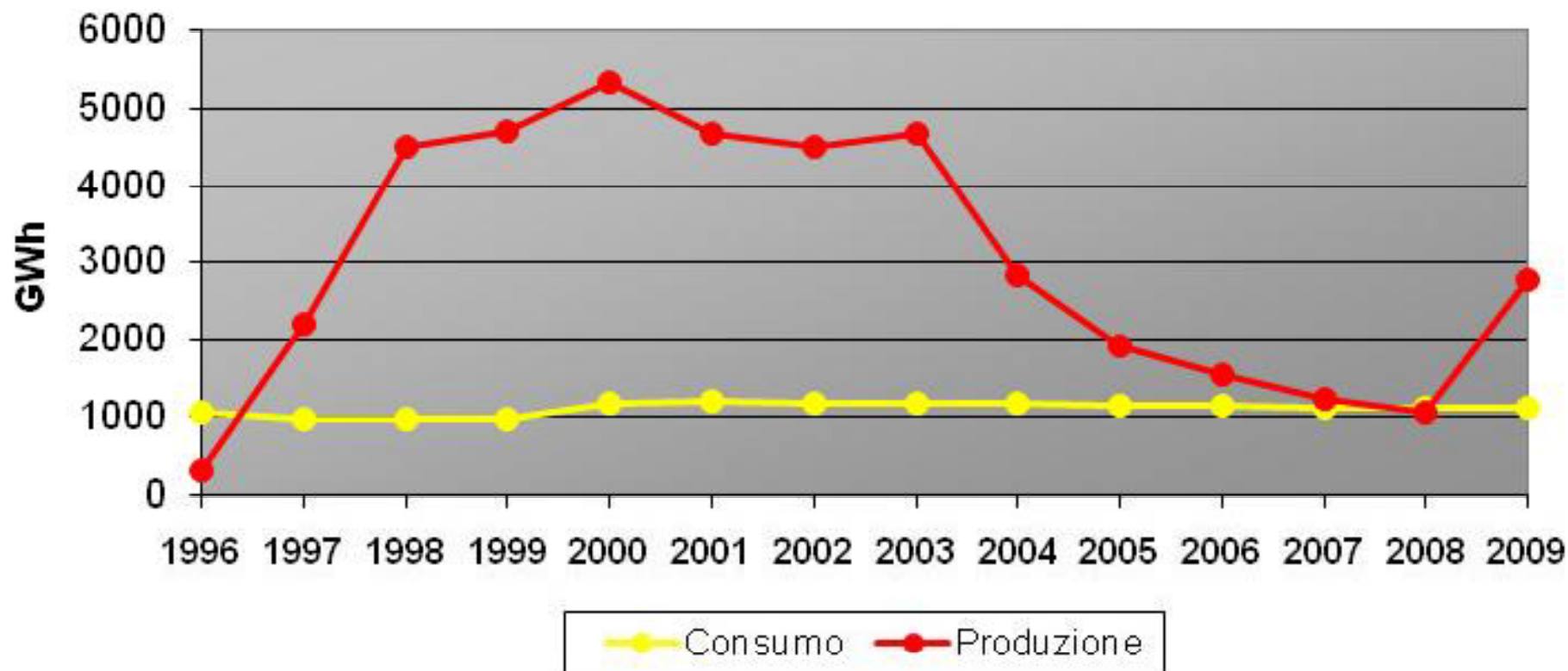


Produzione e fabbisogno di energia elettrica in provincia di Vercelli (dati 2007)





Electric Energy Production - Consumption Provincia di Vercelli



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Main results:

1. synthesis of the European, National and Regional legal framework
2. analysis of energy consumption and production by energy carriers and utilization sectors at Municipalities level.
3. Drafting of environmental-energy balance
4. evaluation of greenhouse gas emissions
5. Survey of RES and RUE technologies, evaluation of local potentialities
6. Development of general criteria and guidelines through the definition of environmental-energy objectives, strategies and related regulative actions

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The primary objective of the Provincial Administration in the coming years is to reduce emissions of greenhouse gases in the atmosphere, in accordance with the regional, national and European strategic objectives.

A realistic goal in the short term can be a reduction of CO_2 eq emissions in the next five years in order to reach the average national per capita value, and then go from 11.34 tons CO_2 eq/inhab. to 9.85 ton CO_2 eq/inhab. This aim can be achieved mainly through the implementation of policies for the rationalization of energy consumption.

In a medium to long term scenario, the Piedmont Region has signed a firm commitment in this direction with the program called "20 - 20 - 20", a manifesto for energy independence from oil (24 May 2008) . The plan calls for a collective sharing of the responsibilities for reducing the greenhouse gas emissions

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To achieve these objectives, the Province of Vercelli has defined three strategic areas within which to intervene with measures of different types:

- Energy saving, rational use of energy and rationalization of consumption
- Exploitation of the potential of renewable resources;
- Diffusion of energy culture among the citizens

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Exploitation of RES potential

- Exploitation of at least 50% of the potential of rice straw. The combined production would amount to 2.65% of electricity demand and at 1, 7% of the needs of thermal energy from natural gas.
- Exploitation of at least 50% of the potential from wood chips. The combined production would amount to 2.16% of the electricity demand and at 1, 39% of the needs of thermal energy from natural gas.
- Installation of photovoltaic systems in at least 20% of primary schools, 30% of secondary schools and 20% of the municipal buildings. The objective of the production of electricity from solar photovoltaics by 2014 is 21,210 MWhel / a, equal to 1, about 9% of electricity needs.
- Provide 25% of the homes of solar thermal systems for DHW production, to ensure coverage of at least 30% of the needs of ACS of hospitals, 30% of the needs of ACS nursing home and then give 20% of the sports facilities of solar thermal systems. The total savings of natural gas would be 0.34% of the total requirement of natural gas.

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Strategies for RES exploitation- Biomass

In the definition of rules to be met for the authorization of biomass projects by the Province of Vercelli two distinct types of plants are identified, according to the source of the biomass used (applicable to biomass and bio-solids, liquids and gases):

. Installations using local biomass. "Local" means biomass from an area within a radius of 35 km from the plant. For such plants the power limit (size of electric generators) is 5 MWel, which may be raised to 6 MWel when operating as a cogeneration plant, in this case, the project will have to define exactly how and where the heat produced in cogeneration will be used or sold.

. Installations using non-local biomass (coming from outside the 35 km radius). For such plants the power limit is 2 MWel, which may be raised to 3 MWel when operating as a cogeneration plant, with the above rules. For this type of plant, the maximum total power of the new plants installed in the next 5 years in the province is 40 MWel.

The limits referred to above are related to new installations, except in cases of renewal, replacement or relocation of existing facilities, provided that the final power will be equal to or lower than that of the original, and that the same type of biomass / fuel are used.

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Strategies for RES exploitation- Biomass

In order to support the opportunity of employing the most advanced technologies in the plants revamping, proposals fulfilling the constraint of not exceeding the original thermal energy input will be considered, maintaining the limits of fuel quality and quantity already covered by the authorization originally granted to the system, and not the limit on the electricity produced, which could be higher as a result of a better performance of the system (better energy and environmental efficiency).

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Strategies for RES exploitation - Solar PV

Installation of PV systems on public buildings (Municipalities, schools, sports facilities, hospitals) in order to achieve energy and cost savings for public administrations and to provide a virtuous example to the community.

Installation of ground-mounted PV in the province, according to the following guidelines:

- The maximum agricultural area in the province on which ground-mounted PV systems can be installed is 50 hectares (0.024% of the total provincial area), a value beyond which the Province will block the granting of new plants.
- The installed peak power of the individual PV system shall be of less than 2 MWp.
- The PV systems will be installed within a distance of 500 m from the outer perimeter of municipal settlements identified by the Settlement Plan of each Municipality (as defined by art. 81 "perimeters of the settlements" of the Regional Law December 5, 1977, No. 56 and amendments "Protection and land use,").
- Isolated settlements are excluded, except farms, even if located outside the outer perimeter of settlements, which install PV systems with a power allowing an annual production of electricity equal to their annual needs
- The restrictions referred to in points above shall not apply to PV on land degraded and / or permanently unfit for agricultural use.

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Thank you for your endurance ! Questions?