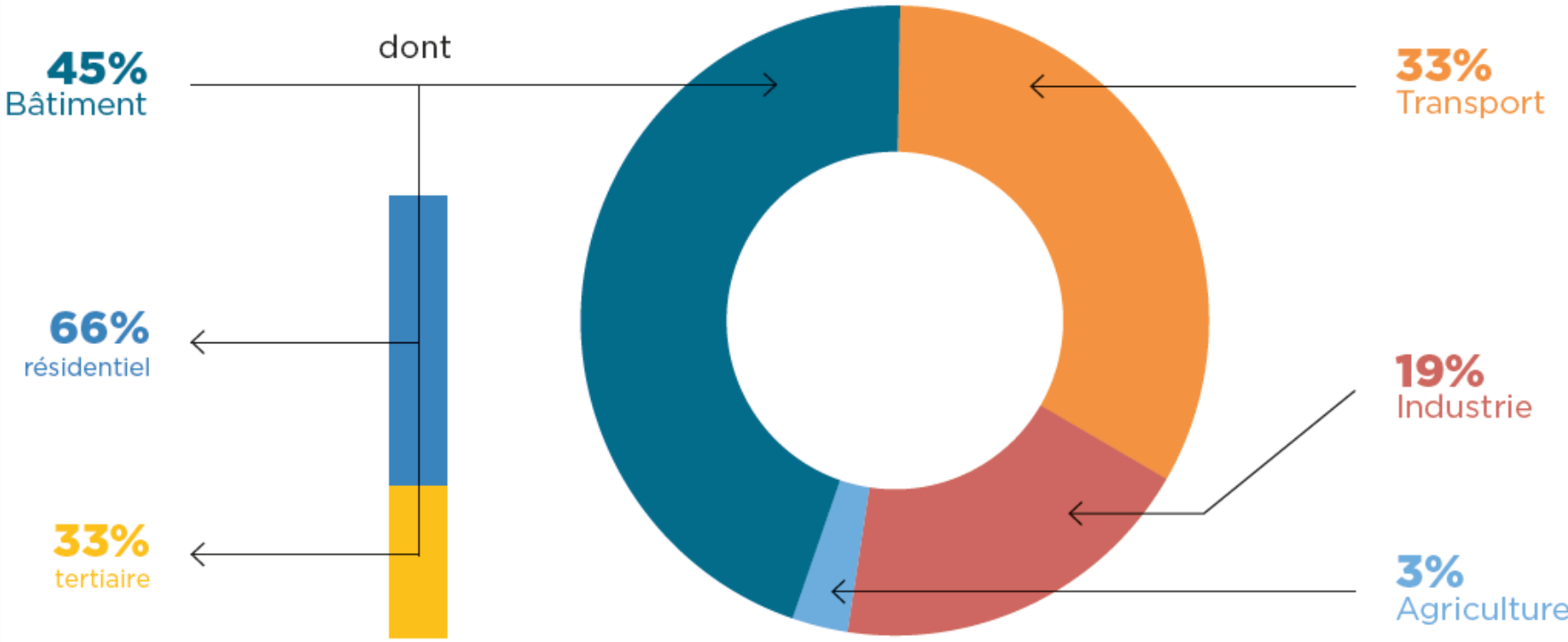
Energy efficiency in buildings & integration of renewables

OFATE 26th april 2017

SYNDICAT DES ÉNERGIES RENOUVELABLES

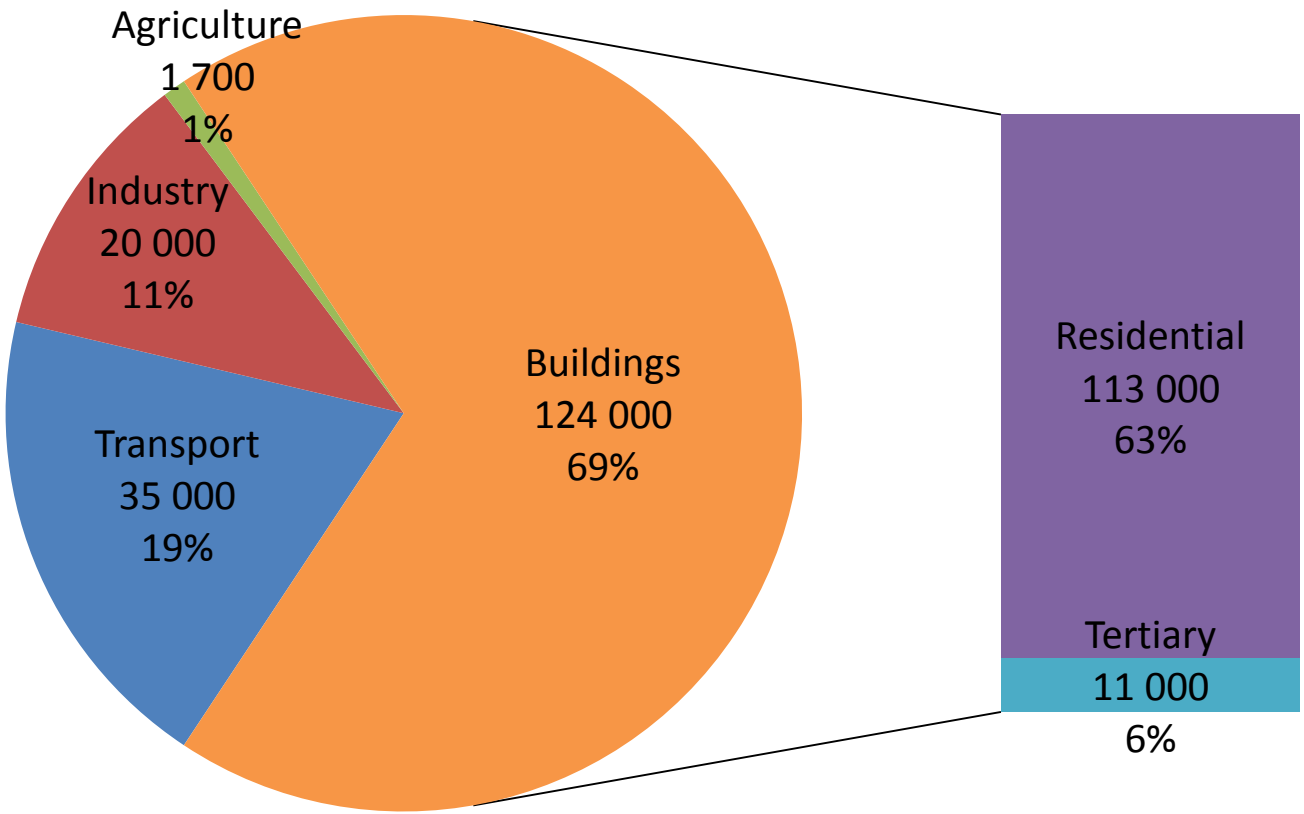
LES ACTEURS DE L'AVENIR ÉNERGÉTIQUE

Energy consumption in France by sectors in 2015



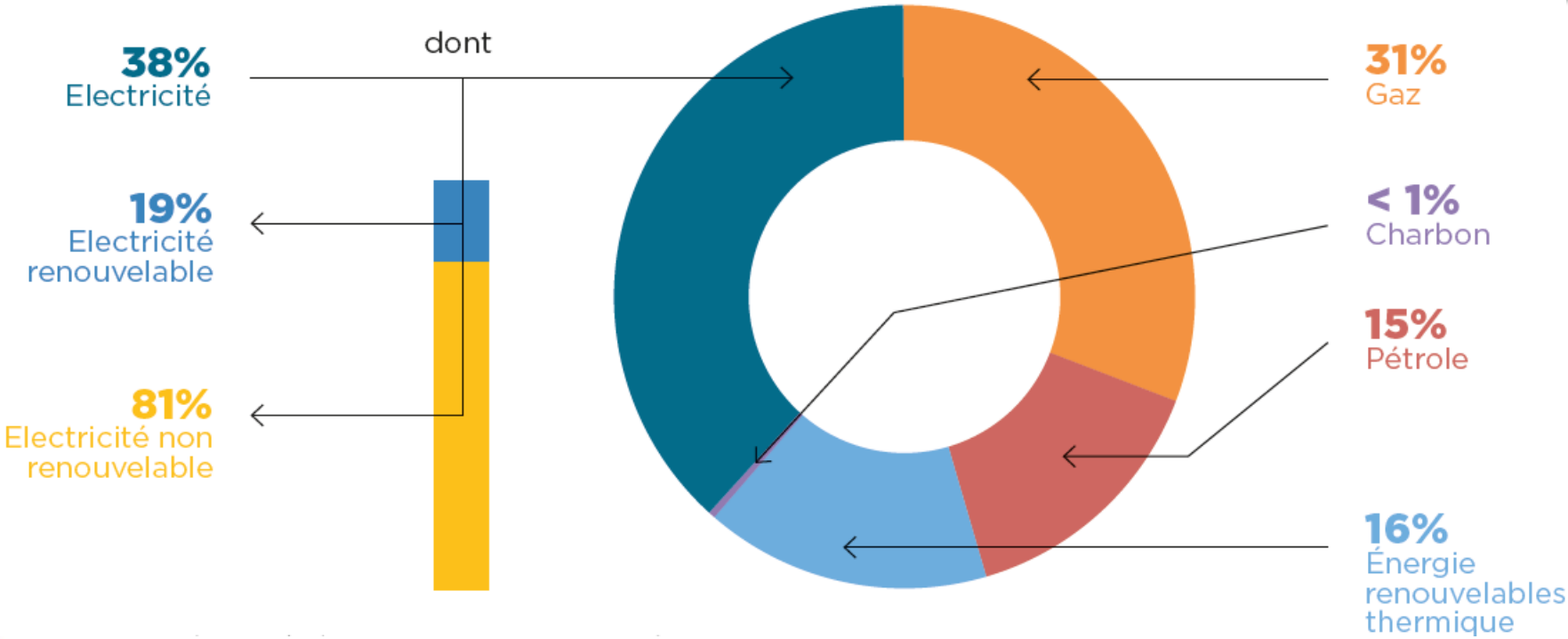
Source : From « Bilan énergétique de la France 2015 » of SOeS, simplified by SER

Final renewable heat consumed by sectors in 2015 (GWh)



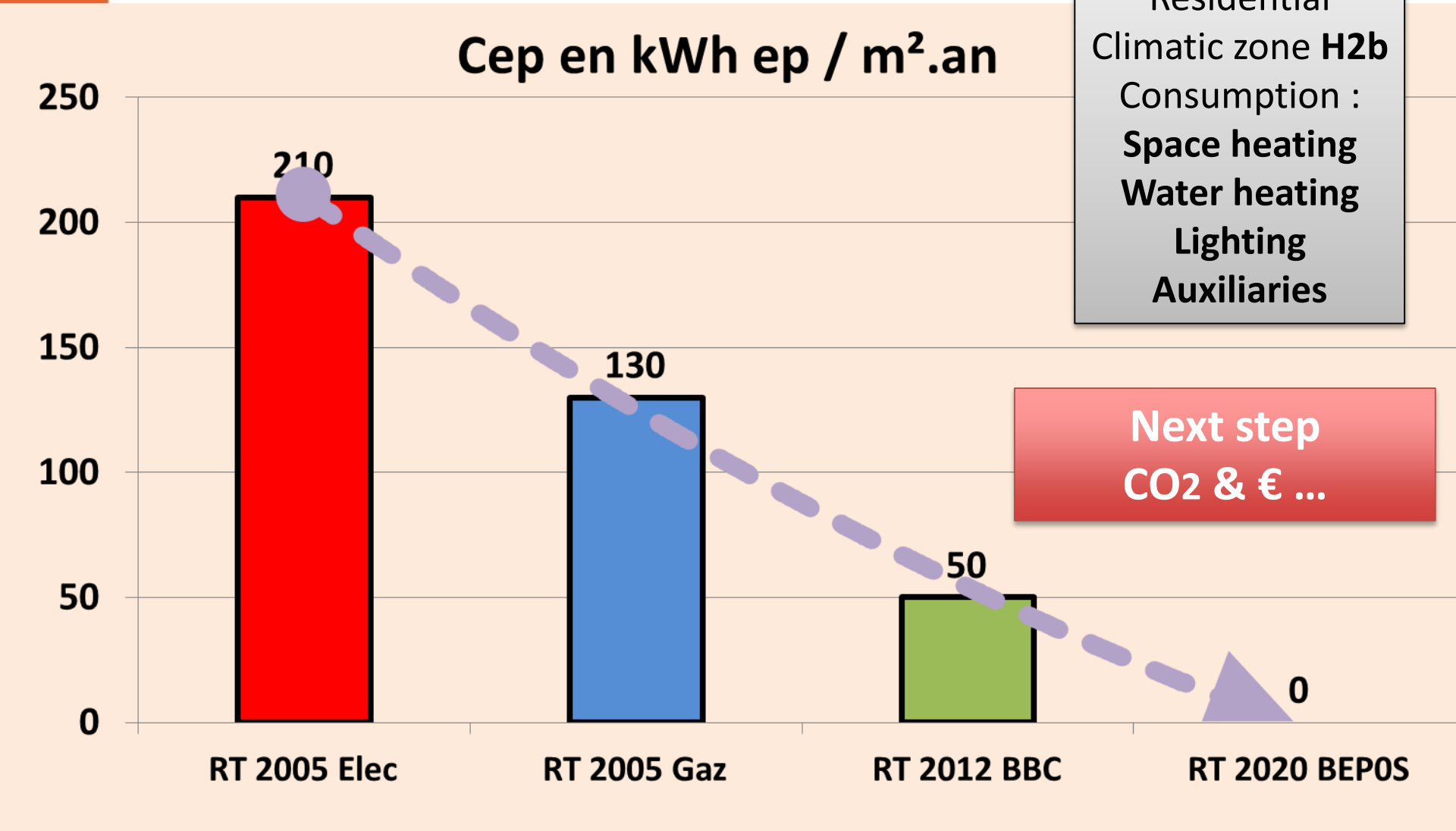
Source : From « Bilan énergétique de la France 2015 » of SOeS, simplified by SER

Final energy consumption in french building sector in 2015



Final consumption in residential-tertiary sector : 780 000 GWh
Source : From « Bilan énergétique de la France 2015 » of SOeS, simplified by SER

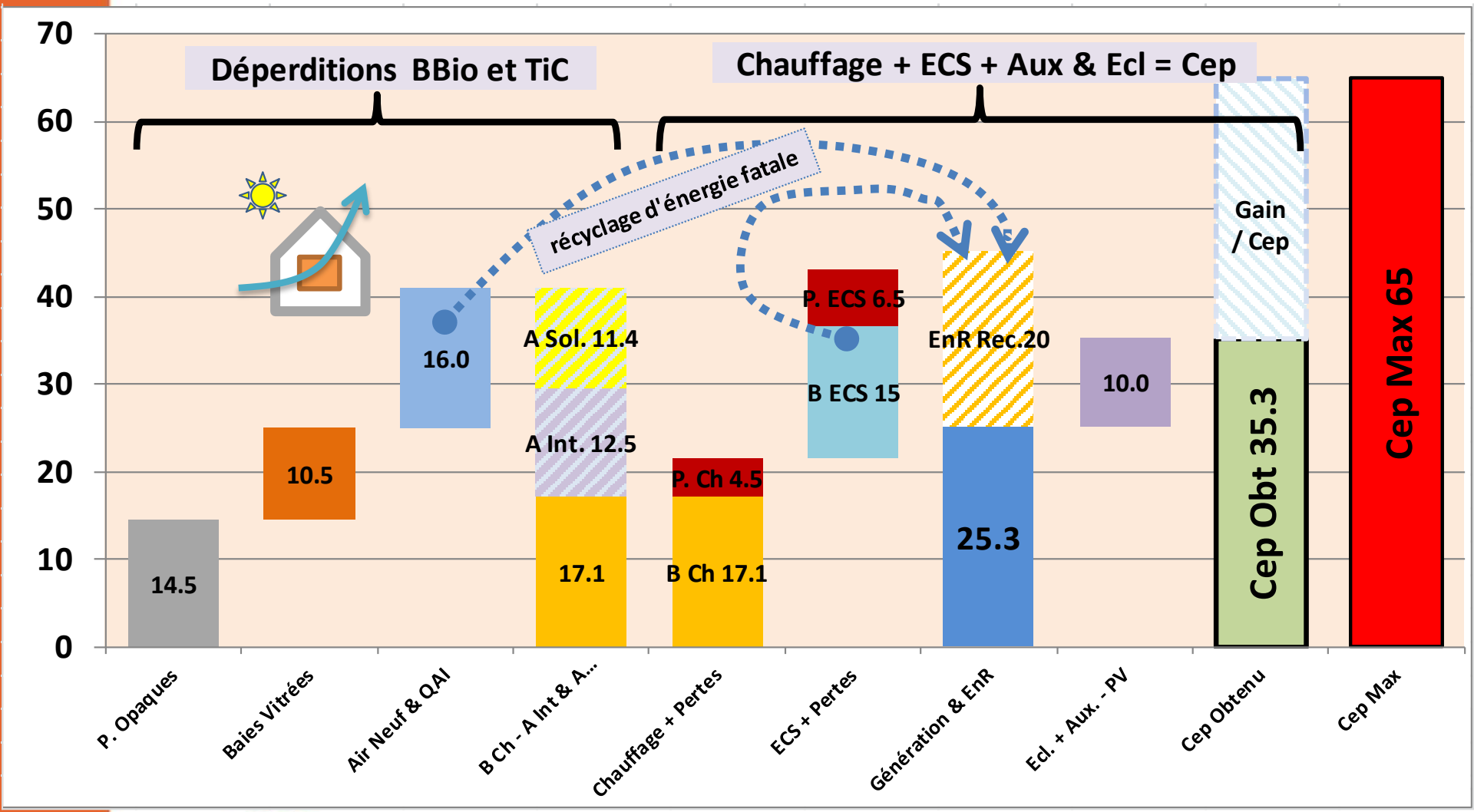
Roadmap of energy regulation in buildings



Calculation example of BBio indicator

Energy needs	kWh/m².an	Bbio Points	Hours/yr	% time	P W/m²
Heating	15	30	*1500*	17%	10
Neutral	0	0	*7010*	80%	0
Cooling	4	8	*250*	3%	16
Lighting	2	10	*1400*	16%	1.4
Total	**21**	**48**	**BBio < BBio max**		
Référence		**60**			

Exemple de solution BBC avec Chaudière à condensation Gaz & PAC Absorption / Récupération de chaleur fatale Air Extrait/ Eaux Grises



Conception of residential programs of tomorrow

Synergy between general contractor, project manager, ingeniering since the beginning

Compacts buildings, well insulated

Efficients windows, optimized, well oriented

Good airtightness, Efficient air conditonning

True quality in realization

Conception of residential programs of tomorrow

Heat recovery on stale air & waste water for space and water heating.

Efficient space and water heating managed by housing

A renewable energy source : ambiant heat, geothermal, wood, solar, district heating

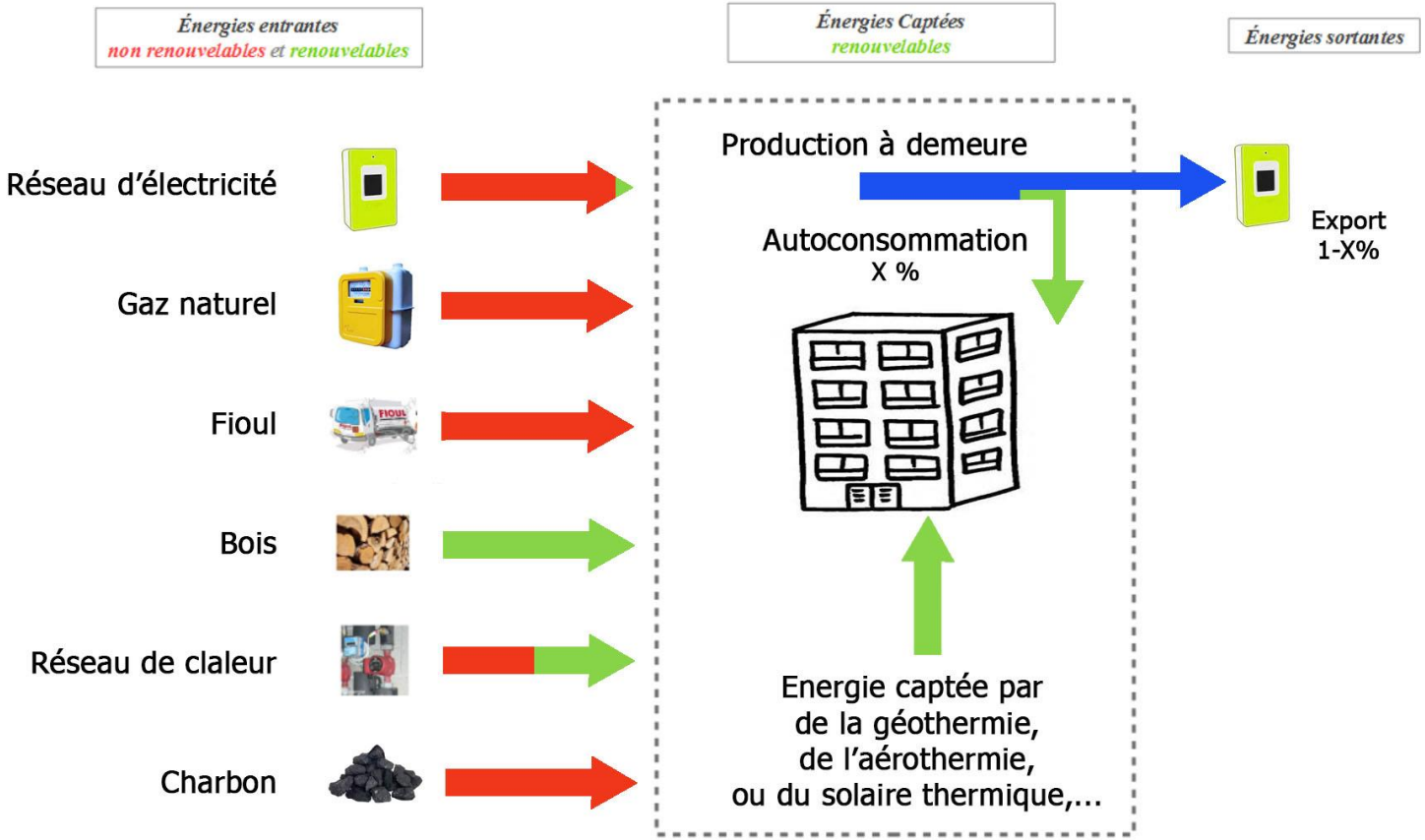
Building automation and control system

Biomass cogeneration, photovoltaïc or hybrid PV to reach positive energy buildings levels

BEPOS indicator

BEPOS indicator = $\sum$ Consumption non-renewable - $\sum$ Renewable energy exported

Thermic regulation uses + specific uses



Toward BEPOS : Energy - Carbon requirements

Opération de résidentiel collectif (valeurs provisoires)								
Valeur maximum du bilan énergétique en kWhep/m²SRT.an								
Zone H	H1a	H1b	H1c	H2a	H2b	H2c	H2d	H3
Cep Max RT 2012	*72.5*	*78.2*	*72.5*	*66.7*	*61.0*	*55.2*	*55.2*	*49.5*
Energie 1	146.2	151.7	146.2	140.8	135.3	129.8	129.8	124.4
Energie 2	139.0	143.9	139.0	134.1	129.2	124.3	124.3	119.4
Energie 3	107.8	111.8	107.8	103.8	99.8	95.8	95.8	91.8
Energie 4	0	0	0	0	0	0	0	0
Valeur maximum de l'empreinte CO2 en kg/m²SDP niveau 1								
Eges max 1	1706	1766	1706	1646	1586	1526	1526	1466
Eges(PCE) max 1	800	800	800	800	800	800	800	800
Valeur maximum de l'empreinte CO2 en kg/m²SDP niveau 2								
Eges max 2	1065	1090	1065	1040	1015	990	990	965
Eges(PCE) max 2	750	750	750	750	750	750	750	750

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