

Overview of electrification technologies and matching with industrial applications → Fig. 28 and potential market readiness based on the results of Sections 3.1 and 4.1

		<ol style="list-style-type: none"> 1: Steam is used in several industries, especially in food, beverages and tobacco and in paper, pulp & printing. 2: Heat pumps can reach temperatures of up to 160 °C (conservative) and 250 °C (borderline). Development underway to achieve higher temperatures. 3: Hot rolling of steel requires high energy densities in the first step (metal reheating). Greenfield plants can adapt by integrating the casting line to allow electrification with current technology. 4: Molten oxide electrolysis (MOE) for steel is expected to be commercially available after 2035, until which time the DRI route is an alternative. 5: Partial electrification of flat glass production possible today, full electrification not expected before 2035. 6: Partial electrification of cement clinker production (calcination step) expected to be technically feasible by 2030, full electrification by 2035. 7: Lime is also used in pulp production as part of the paper, pulp & printing sector. Electrification by 2030 or 2035, depending on the type of lime production. 						
		Electric boilers	Heat pumps	Resistance heating	Induction heating	Plasma torches	Electric arc furnaces	Shock-wave heating
All	Steam (1)	2						
Iron and Steel	Steel from EAFs							
	Hot rolled steel			3				
	Oxygen steel					4		
	Others/Not considered							
Chemical and petrochemical	Steam cracking							
	Steam reforming							
	Carbon black							
	Others/Not considered							
Non-ferrous metals	Primary aluminum							
	Non-ferrous metals processing							
	Others/Not considered							
Non-metallic minerals	Container glass							
	Flat glass							
	Cement clinker			6				
	Lime (7)							
	Others/Not considered							
Others								

