

ANNEX B: Detail of Maximum Expected Energy Saving Figures from Component Options for Wood Working MT and Welding Equipment (Policy Option 1) - Base Cases taken from the ENTR Lot 5 Preparatory Study

Group	Option	Base Case [Fraunhofer classification]	BC1	BC2	BC3 <small>Error! Bookmark not defined.</small>	BC4	BC5	BC 6,7,8	BC9
		DESIGN OPTION DESCRIPTION	CNC MT	LASER CUTTING	CNC DRAW/BEND TOOL	NON-NUMERICALLY METAL-WORKING MT	WOOD TABLE SAW	WOOD PANEL SAW ; WOOD BENDER ; WOOD CNC	TRANSPOR TABLE WELDING
		TOTAL	32.00%	5.00%	32.00%	2.20%	5.00%	26.50%	X
G10	1	Minimise non-productive time	5.0%						
G2	2	400V inverter systems to substitute 200V systems	1.0%						
G3	3	Regenerative feedback of Inverter system (servo motor/spindle)	0.5%						
G8	4	Controlled peripheral devices like mist extraction, chip conveyer, etc	1.0%						
G2	5	Single master switch-off	1.0%						
G6	6	Combination of several power electronics related measures	1.5%						
G4	7	Combination of several cooling lubrication system related measures	2.0%						
G1	8	Combination of several overall machine related measures	2.0%						
G3	9	Combination of several hydraulic system related measures	3.0%						
G2	10	Combination of several drive units related measures	3.0%						
G5	11	Optimised compressed air system with minimal losses	1.0%						
G2	12	Individual switched-off capability for specific modules	1.0%						
G7	13	Multi spindle-/ multi workpieces machining	5.0%						
G7	14	Combination of various technologies (turning + milling + laser + grinding etc.)	5.0%						
G5	15	Fibre lasers / Solid state instead of		X					

		Base Case [Fraunhofer classification]	BC1	BC2	BC3 ^{Error!} Bookmark not defined.	BC4	BC5	BC 6,7,8	BC9
		C02							
G3	16	Efficient chiller units		5.0%					
G9	19	Provide customer information to reduce consumption of resources			1.0%				
G3	20	Energy efficient pulse valves			0.5%				
G9	21	Optimisation of work piece processing by die tryout			0.5%				
G3	22	Avoid internal leakage			0.5%				
G3	23	Choice of the pump systems which match the requirement profile			1.0%				
g8	24	Controlled peripheral devices like mist extraction, scrap conveyer, etc			0.5%				
G7	25	Directed switch off of not needed branches			0.5%				
G6	26	Low flow rate for lubrication pump			0.5%				
G6	27	Apply the simultaneity factor when designing the power system			0.5%				
G1	28	Minimisation of moved masses			1.0%				
G1	29	Optimisation of the overall machine design			0.5%				
G3	30	Use of energy efficient motors			1.0%				
G2	31	Match the pressure level to the load cycle and to the different actuators on the machine			1.0%				
G2	32	Combination of several control related measures			1.0%				
G7	33	Combination of several pneumatic system related measures			2.5%				
G3	34	Energy efficient valve connectors			0.5%				
G3	35	Use of pressure intensifiers for individual actuators which require higher pressure			0.5%				
G4	36	Lubrication flow depending on demand			0.5%				
g2	37	Intelligent drive management			5.0%				
G3	38	Pressure adjustment using pressure-controlled drive systems			5.0%				
G3	39	Displacement control systems			3.0%				
G2	40	Use of multi-pressure accumulator system for main axis			5.0%				
G3	41	IE3 motor instead of IE2				2.2%			

		Base Case [Fraunhofer classification]	BC1	BC2	BC3 ^{Error!} Bookmark not defined.	BC4	BC5	BC 6,7,8	BC9
G1	42	Tables made of cast iron instead of aluminium					X		
G3	43	Higher motor efficiency					5.0%		
G3	44	Application specific design of drives						1.0%	
G2	45	Machine stand-by management						5.0%	
G1	46	Less parts to be moved						1.0%	
G4	47	Electrical clamping devices						3.0%	
G5	48	Optimised blowing nozzles						1.0%	
G8	49	Minimised pre-heated glue volume						10.0%	
G3	50	Combination of measures for improved electronics / power supply						1.5%	
G5	51	Load-dependent air table control						1.0%	
G2	52	Energy monitoring						1.0%	
G3	53	Efficient motors also <750 W						1.0%	
G5	54	Line controlled blow-off device to adapt air consumption to actual needs						1.0%	
G3	17	Arc welding DC power efficiency improvement							X
G10	18	Idle power consumption of less than 10W							X

The levels of savings achievable under various POs are discussed in the Lot 5 Preparatory Study, and in all cases are less than the totals shown here.