

Low cost improvements for coffee roasters

Cost saving measures, productivity enhancements and optimisation opportunities for coffee roasters

TASK	SUB-TASK/DETAIL	COMPLETE?
Measure energy intensity	Gather your utilities bills (ask your energy company to provide a monthly report)	
	Use the EECA Energy Calculator for the coffee sector to measure the energy intensity per kg of coffee roasted	
	Reference energy benchmarking for the coffee sector to achieve optimal energy intensity and cost saving opportunities	
Basic energy saving Maintenance	Conduct energy awareness training for staff, to promote efficient energy use within the business	
	Switch off equipment when not in use, either manually or programmed – smart plugs can also be used where appropriate	
	Implement appropriate scheduling to regularly perform basic energy maintenance	
	Check temperature sensors are calibrated, clean and in good condition	
	Check insulation is in good condition on pipes and equipment	
	Review possibility to perform dry ice cleaning of internal roaster and pipework, recommended quarterly	
	Undertake regular flue cleaning, recommended monthly	
	Clean underneath the cooling tray daily	
	Conduct burner maintenance on a regular basis by a qualified technician	
Production planning	Integrate EECA's Energy Calculator for the coffee sector into monthly routine	
	Minimise downtime between batches	
	Review options to have longer roasting days and the possibility to have non-roasting days	
	Review opportunities to optimise roasting profiles and timing without impacting quality	
	Optimise roasting schedule, moving from light roast to darker roast during the roasting period	
	Ensure optimum batch sizing for the roasting equipment, challenge the thinking of smaller is best	
Green bean storage	Measure green bean moisture content	
	Store green beans at conditions that promote drying (away from direct sunlight and kept dry)	
	Look at optimum moisture content range (eg. 9-12%)	
Green bean loading	Optimise bean transfer and conveying to reduce damage and dust creation	
	Review options for a green bean cleaner to remove dust	
	Review options for a colour sorter to remove defect beans	
Roasting chamber	Inspect and reduce air in-leakage into the chamber by ensuring roaster is well insulated	
	Optimise the combustion air to fuel gas ratio, this may require support from a service technician	
	Review automatic software solution	
	Adjust target temperature profile for thermometric lag in chamber	
	Inspect cleanliness of drum and ducting	
	Review internal drum condition and outsource external service technician support	
Bean cooling	Depending on cooling tray design, ensure bed depth is not too deep (0.075-0.1m)	
	Consider how bean blending is performed and if this can be more energy efficient	
	Review options to cover cooling tray to reduce heat loss from roasting chamber	

Afterburner	Ensure afterburner is optimised to suit requirements	
	Verify afterburner is running as should be and within specification	
	Review possibility to look at heat recovery. Can heat be reused/repurposed e.g space heating	
	Check insulation is in good condition	
	Review opportunities to include filters	
	Review alternative methods to clean air (water recovery/scrubber)	
	Review opportunities to consult with local councils. Consider smell vs CO2	
Other	Review converting lights to LED	
	Review opportunities to procure electric forklifts	
	Review opportunities to procure hybrid or EVs for deliveries	
	Review opportunities to repurpose the waste chaff such as worm farms or compacted into bricks	
	Review opportunities to reduce truck movements <ul style="list-style-type: none"> • Is it possible to hold extra stock? • Can the driving routes be optimised? 	
External resources	How to clean coffee roaster with dry ice - SPECCo2	
	Giesen Tutorials - W6 Series - Weekly maintenance - YouTube	
	Coffee Roaster Maintenance - YouTube	
	Roaster Maintenance Kit - YouTube	
	Good practice when operating your Industrial Coffee Roaster - Toper Coffee Roasters UK	
	Managing the Nitty Gritty: Cleaning and Maintenance in the Roastery	
	Protocols & Best Practices — Specialty Coffee Association	