

Illustrative list of some of the key Technologies

Illustrative list of some of the key Technologies pertaining to the energy intensive sectors under the Perform, Achieve and Trade Scheme having large energy saving and climate benefits with deployability in timelines ranging from 5 to 10 years contingent upon the access and affordability (Mitigation perspective).

S.NO.	Sector	Technology	Indigenous (Ind)/ Imported (Imp)	Implementable within 5 years	Implementable within 10 years	Finance as a Barrier/ Affordability Issue	Technologies implemented in India
1	Fertilizer	Installation of vapour absorption system with low temperature	imp/ind	Yes		Yes	yes
2	Fertilizer	Zirconium Coating	imp	Yes		Yes	Yes
3	Fertilizer	Installation of Secondary Reformer Heat Exchanger	imp	Yes		Yes	yes
4	Chlor-Alkali	Zero Gap Electrolyzer	imp	Yes		Yes	
5	Chlor-Alkali	Oxygen – Depolarized Cathodes (ODCs) (Germany)	imp	Yes		Yes	
6	Chlor-Alkali	Hydrogen Fuel cell (Germany, Netherlands)	imp	Yes		Yes	
7	Thermal Power plant	Pulverized Combustion Ultra Super Critical (PC USC)- Main steam and reheat temperature around / above 600 deg C	Imp		Yes	Yes	

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8	Thermal Power plant	Pulverized Combustion Advanced Ultra Super Critical (PC USC) - Main steam and reheat steam temperature more than 700 deg C	Imp		Yes	Yes	
9	Thermal Power plant	Integration of Cordinated/ central Control System with Computation Fluid Dynamics (CFD) Analysis of Flue gas path in ducts	imp		Yes	Yes	
10	Thermal Power plant	Micro oil ignition system (MOIS)	Imp	Yes			Yes
11	Thermal Power plant	Ammonia based Desulphurisation	Imp		Yes	Yes	
12	Aluminium	Drained cell technology with wet table cathodes	imp		Yes	Yes	
13	Aluminium	Cu-insert collector bar technology in aluminium smelter	Imp	Yes			Yes
14	Aluminium	Zero Gap Electrolyzer	imp	Yes		Yes	
15	Iron and Steel	Top recovery turbine (TRT)	imp	yes		Yes	yes

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16	Iron and Steel	Coke Dry Quenching (CDQ)	imp	yes		Yes	yes
17	Iron and Steel	Converter gas recovery	imp	yes		Yes	
18	Iron and Steel	Waste Heat recovery generation from Low TPD Sponge Iron Plants	imp/ ind	yes			yes
19	Iron and Steel	Regenerative/ recuperative Burner for Reheating Furnace (China, Japan)	imp	Yes		Yes	yes
20	Pulp and Paper	Nansulate Coating of Dryer end of Paper machine for surface temperature reduction thereby lowering Radiation heat loss –Demonstration (Netherlands)	imp		Yes	Yes	

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21	Pulp and Paper	Installation Of Extended Delignification System For Cooking Of Wood (Finland)	imp	Yes		Yes	
22	Pulp and Paper	Black Liquor Gasification	imp	Yes		Yes	
23	Pulp and Paper	Oxygen delignification and efficient screening to obtain low kappa (Norway)	imp	Yes		Yes	
24	Pulp and Paper	Installation of Multi-Port Dryer in Paper Machine to reduce steam Consumption	imp	Yes		Yes	
25	Textile	Installation of Mechanical Vapour Recompression technology instead of using Multiple Effect evaporators.Additional cost of MVRE over MEE and Payback period	ind	yes			Yes
26	Textile	Turbine compressor installation and generation of compressed air by using waste heat from PP PRDS(Pressure reducing and desuperheating system)	ind	yes			Yes
27	Textile	Ultrasonic Assisted Wet Processing (China)	yes	Yes		Yes	

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28	Textile	Supercritical- CO2 Dyeing Technique (Netherlands)	yes		Yes	Yes	
29	Textile	Closed condensate recovery pump (Japan)	yes	Yes		Yes	
30	Textile	Free Float Steam Trap (Japan)	yes	Yes		Yes	
31	Cement	Utilization of Advanced Automation systems in Cement Manufacturing with online CFD analysis, Analytics and Predictive Control (data analysis and remote asset monitoring)	imp		Yes		Yes
32	Cement	Oxy-fuel combustion technology	imp		Yes		Yes

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33	Cement	Recuperation of radiating heat from Kiln and Preheater sections using panel heat exchanger	ind/imp	Yes			Yes
34	Cement	Manufacturing of Polymer Cement from Waste of Iron Sludge	imp		Yes		Yes
35	Cement	Horror mill for cement grinding	imp	Yes		Yes	Yes