

Energy and environment. Environmental impact of thermal plants. Energy technologies and measures for reducing the environmental impact, Climate change. International Environmental Policy. European Environmental Policy & Objectives. Environmental legislation. Emissions Trading System (ETS). Particles from combustion in thermal stations and pollution abatement systems (electrostatic precipitators, bag filters, cyclones). Mechanisms of formation and capture capabilities of main gas pollutants (NO_x, SO₂). Acid dew point and factors that affect it. CO₂ emissions and the greenhouse effect. CO₂ emissions reduction studies in different countries. CO₂ emissions reduction in electricity generation. CO₂ capture and storage technologies in thermal power plants. Large-scale energy storage systems (Power-to-X) that include the reuse of CO₂. Energy recovery of waste and residues. Operation and pollution abatement technology of thermal power plants for waste utilization or production of secondary fuels from recovered waste materials. Life cycle analysis. Measurement techniques for gas pollutants (O₂, CO₂, O, SO₂, N₂O), C_xH_y, NO_x) and particles. Laboratory exercises focusing on measurement of gas pollutant concentration.