

Backgrounder - What is Sustainable Coal Stewardship?

Sustainable Coal Stewardship (SCS) provides a pathway which supports **extracting more value per tonne of coal**. Value is determined and measured in **both economic and environmental benefits**.

SCS describes an intent, approach and a broader definition of the abatement opportunities that the coal value chain has to modernise and transform their coal and allied businesses to meet and advance the needs of our global society.

SCS does not prescribe what abatement opportunities should be adopted by any nation or company. Rather it supports the right to choose and establishment of a coal ecosystem which includes options of efficiency, process improvements, health and safety, emissions reduction including carbon abatement, waste management and recycling, land rehabilitation, technology advancement and innovation.

Specifically, SCS comprises three components: '



1. Pre-combustion

Pre- combustion describes the abatement opportunities available to the upstream sector in the coal value chain.

These include, but are not limited to, the adoption of efficient and innovative mining processes, practices and equipment including electrification, intelligent platforms, digitalisation, waste management, recycling, dust and water management, management of surface subsidence, land disturbance and rehabilitation, methane management, renewable power, efficient coal processing, washing and beneficiation practices.

2. Combustion

Combustion describes the range of efficiency technologies which when combined support power and heat utilities to abate and capture up to 99% of emissions.

These include high-efficiency and low emissions (HELE) plants such as Ultra Super Critical (USC), Combined Heat and Power (CHP), electricity production from coal gasification (Integrated Gasification in Combined Cycle (IGCC), and co-firing coal with biomass.

These technologies can also be combined with emission mitigation technologies such as lowering SO_x emissions through Flue Gas Desulphurisation (FGD), particulate matter control (through Electrostatic precipitators or ESP and bag or ESP and bag filters), low NO_x systems, and carbon capture storage and utilisation and storage (CCS/CCUS).

These technologies also have broader industrial applications including steel and cement production and processing where cleaner technologies, reuse and recycling of by-products from the emission capture technologies also play an essential role, such as the reuse of CO₂ for chemicals production and enhanced oil recovery.

3. Beyond Combustion

Beyond Combustion encapsulates a vision where future business opportunities expand further to transforming coal into new higher value products, such as Coal-to-Liquids (CTL), creating synthetic liquid hydrocarbons, hydrogen, methanol, and agri-chemicals most of which are being produced today.

Coal and coal waste acting as a secondary resource for cementitious materials, including fly ash from power stations and slag from ironmaking blast furnaces which are valuable to the construction sector to replace cement.

Critical minerals, essential for our digitised and electrified future, such as rare earth metals, which can be harvested from coal waste. Coal and waste recycling from the value chain which drives a responsible and transformative change in society, providing a source of advanced materials such as graphene and carbon fibre, while also meeting the most basic needs such as water filtration in developing regions suffering water scarcity.

At the heart of Beyond Combustion is technology and innovation to provide solutions for a growing urbanised and modernised global society.