The Strategic University Steel Technology and Innovation Network

Louis Brimacombe & Richie Hart

SUSTAIN

Future Steel Manufacturing Research Hub

GCRA1: Zero Carbon Iron and Steelmaking

EPSRC

Engineering and Physical Sciences Research Council

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GCRA1 – Materials, Resources and Energy: part 1 – Richie Hart & Louis Brimacombe

- UK Steel industry: Scene setting
- Disruptive Steel Technology for Steel Plant of 2050
  - Materials
  - Energy & Gasses
  - Zero Net Carbon
  - Zero Waste

GCRA1 – Materials, Resources and Energy: part 2 – Louis Brimacombe & Richie Hart

- Scope development
- Alignment of academics and industrialists
- Industrial Symbiosis

GCRA2a – Decoupling the material-value-carbon-nexus: Retaining the Embedded Value of Steels

Rhys Charles & Eoin Bailey

- Value creation and its link to emissions and consumption
- Maximising value retention through 'tight' circular economy loops
- Identifying barriers to 'tight' loops
- Overcoming the barriers

GCRA2b – Steel as a Service

Eoin Bailey & Rhys Charles

- Outward looking & sector driven
- Properties of interest
- Material tracking and identification

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GCRA 1 Workshop: Carbon Neutral Iron and Steelmaking

Agenda

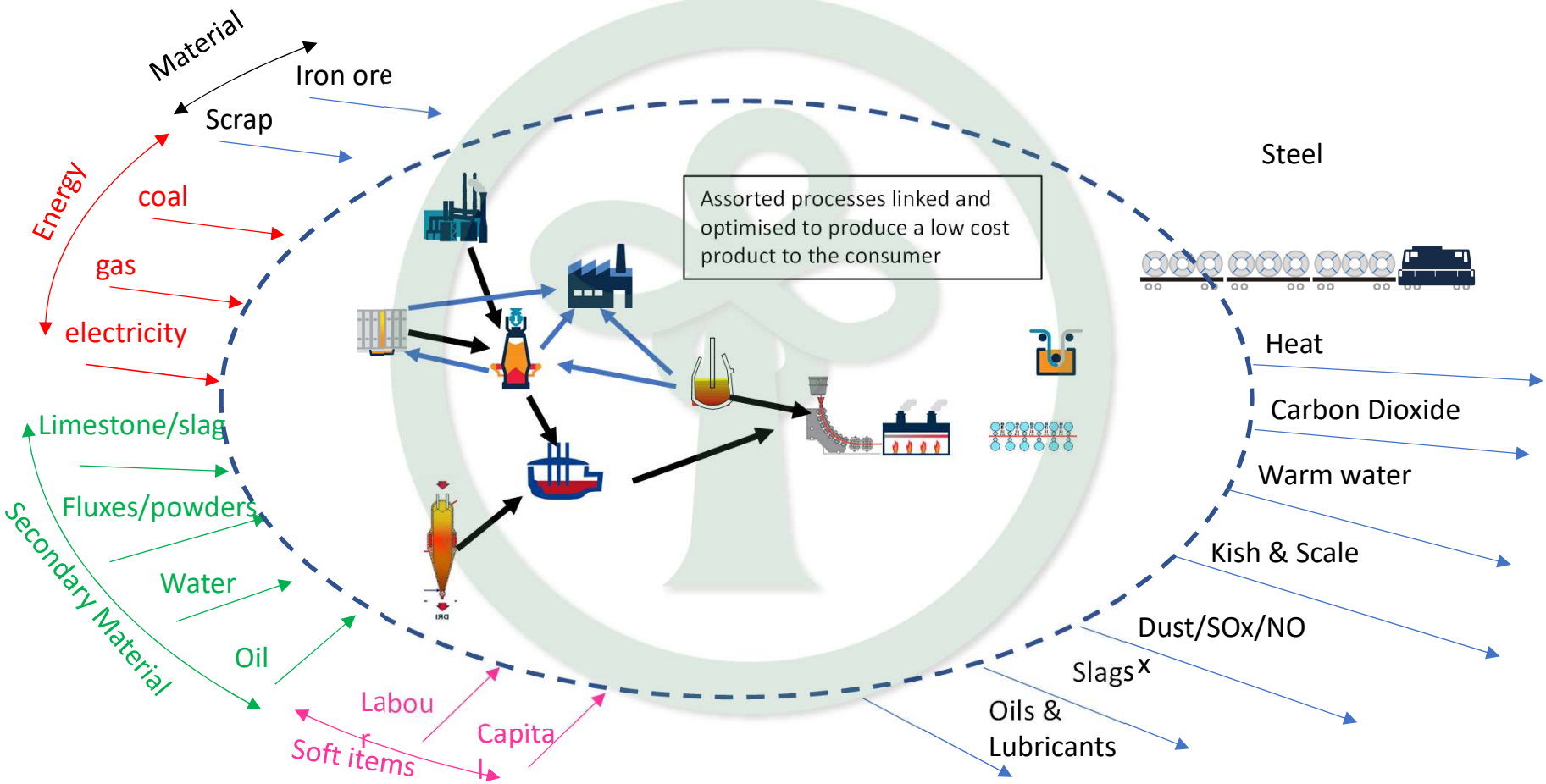
GCRA1 Session 1

13:10 – 13:20 Introduction Richie Hart
13:20 – 13:30 Steel Plant 2050 Louis Brimacombe
13:30 – 13:50 Post it notes session
13:50 – 14:10 Read notes in silence and arrange into groups (based upon discipline)
14:10 – 14:30 Coffee break

GCRA1 Session 2

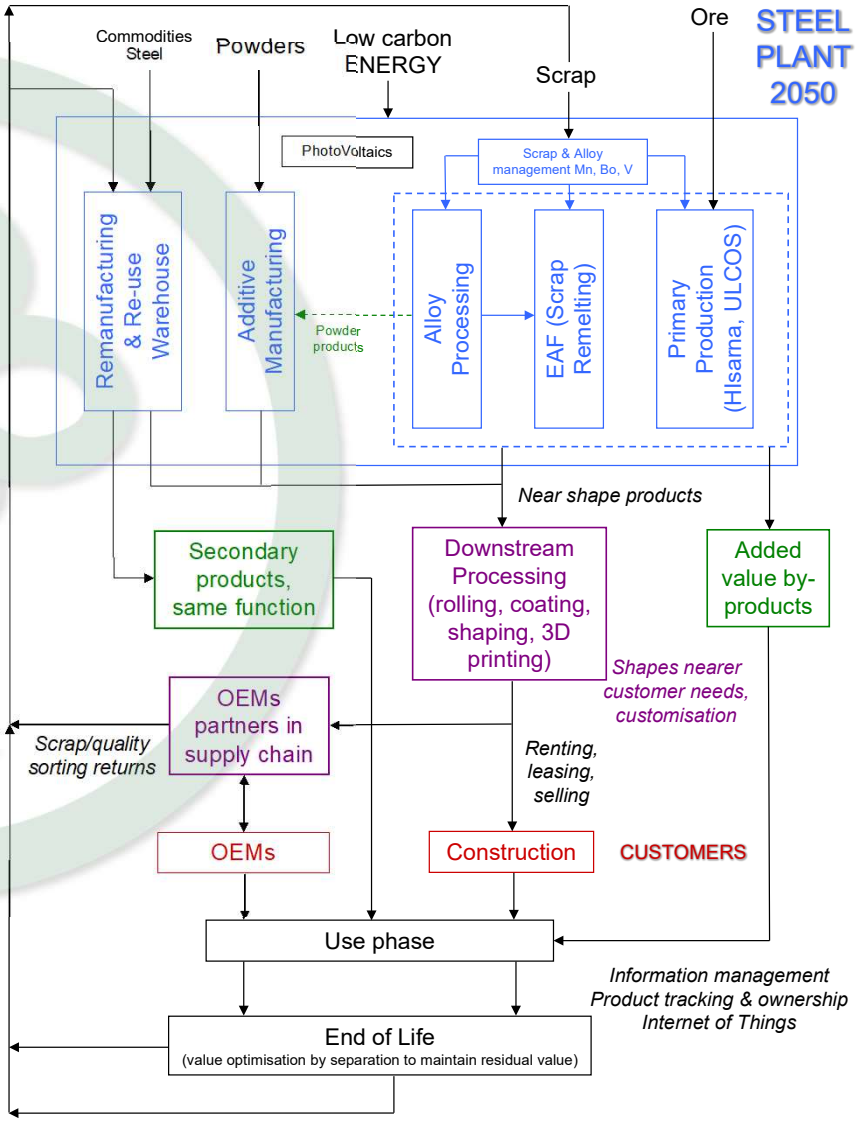
14:40 – 14:50 Assemble into groups corresponding post it groups
14:50 – 15:00 Sit in groups and agree group leader
15:00 – 15:20 Ranking of ideas, defining TRLs
15:20 – 15:35 Agree scope and potential projects / project teams
15:35 – 15:40 Input into post-box / scope definition and seeds for future sandpit

Materials Resources and Energy: ‘As Is’ Linear View of Steel



A Vision for Steel: 2050

- Reuse warehouse on site
- Renewables on site/and LC via grid/Bio-materials
- Flexed Scrap/Primary Manufacture
- Low carbon manufacturing(CCUS)
- By-products/exports & Imported waste streams
- Eliminate Yield losses in SC
- Alloy Processing/Management
- Additive manufacturing/3DP
- Near final shape products
- Closer Customer/SC collaborations
- (NS products /Recovery/Reuse)
- Leasing/Lifetime Product tracking
- (Internet of things)
- Stronger/lighter products (HSS)
- Functional/Durable Coatings



The University Of Sheffield.

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BRITISH STEEL

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LIBERTY STEEL

TATA STEEL