Value Chain Study: Preliminary Findings

FCHJU Programme Review Days

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Study objectives

- Assessment of the potential for FCH value chains to create socio-economic value in Europe
  - Analysis and mapping of European FCH supply chain and knowledge-based actors
  - Development of realisable deployment and industry scenarios to 2030
  - Socio-economic analysis of those scenarios

- Recommendations to support value creation in Europe

Study team

E4tech
Strategy | Energy | Sustainability

Project management
FCH expertise

ECORYS

Socio-economic analysis

SA STRATEGIC ANALYSIS LLP

FCH expertise
Cost analysis

Study scope covers a range of transport and stationary applications

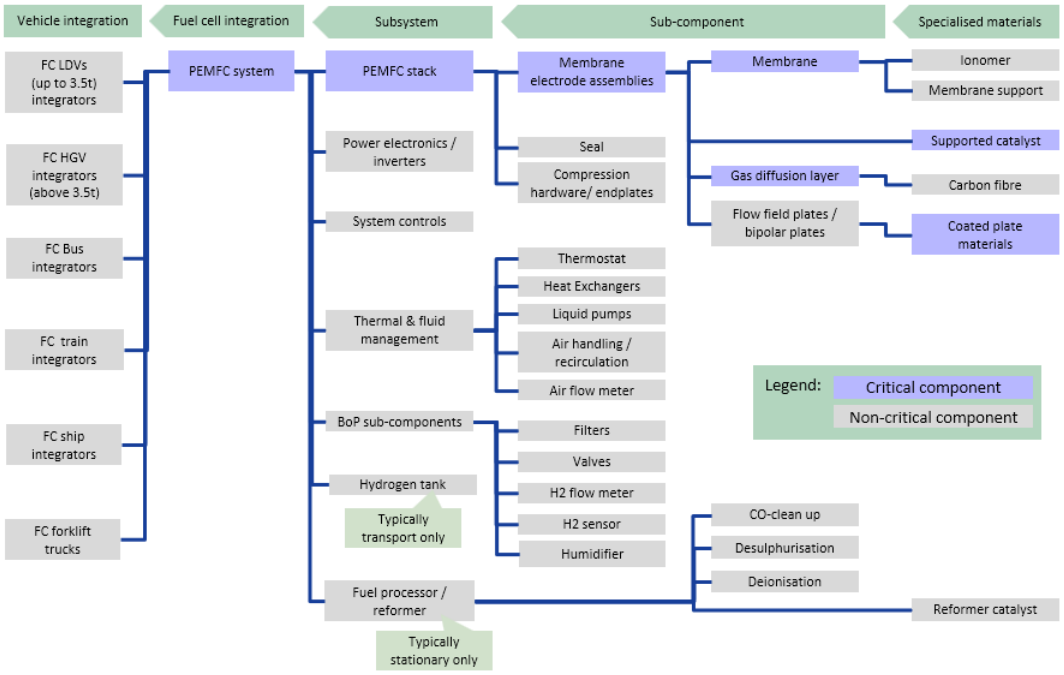
- For all applications
  - Supply chain map by application and chemistry
  - Critical components
  - SWOT and gap analysis
  - Global and EU deployment scenarios to 2030
- For **highlighted** applications
  - Cost breakdown projection
  - Value analysis
  - Industry scenarios
  - Socio-economic impacts
- For selected critical components (17 in total)
  - SWOT and gap analysis

Transport
- **Cars and LCVs**
- **Buses**
- **HGVs**
- **Trains and lightrail**
- Forklifts
- Boats
- *Compressed hydrogen storage*

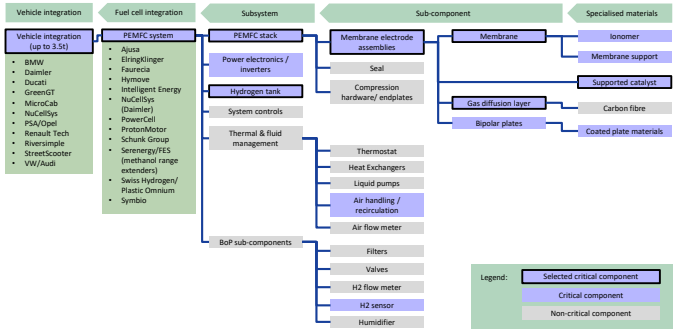
Stationary
- **HRS**
- **Electrolysers**
- **Micro-CHP**
- **Commercial CHP / prime**
- Large CHP / prime power
- Backup-power and gensets
- Fuel processors / reformers

Other
- *LOHC / Ammonia*

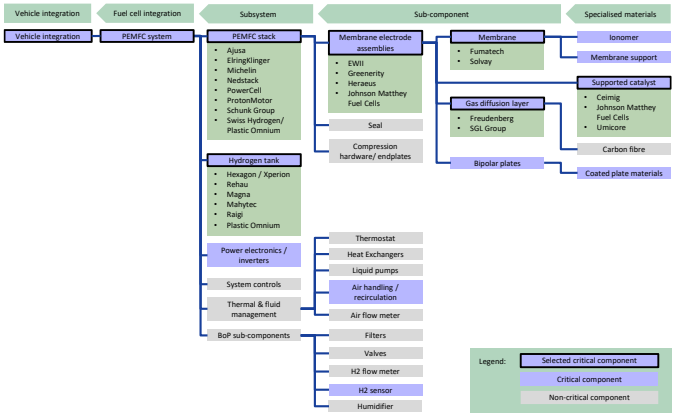
Supply chain maps capture European actors at both the system and component level



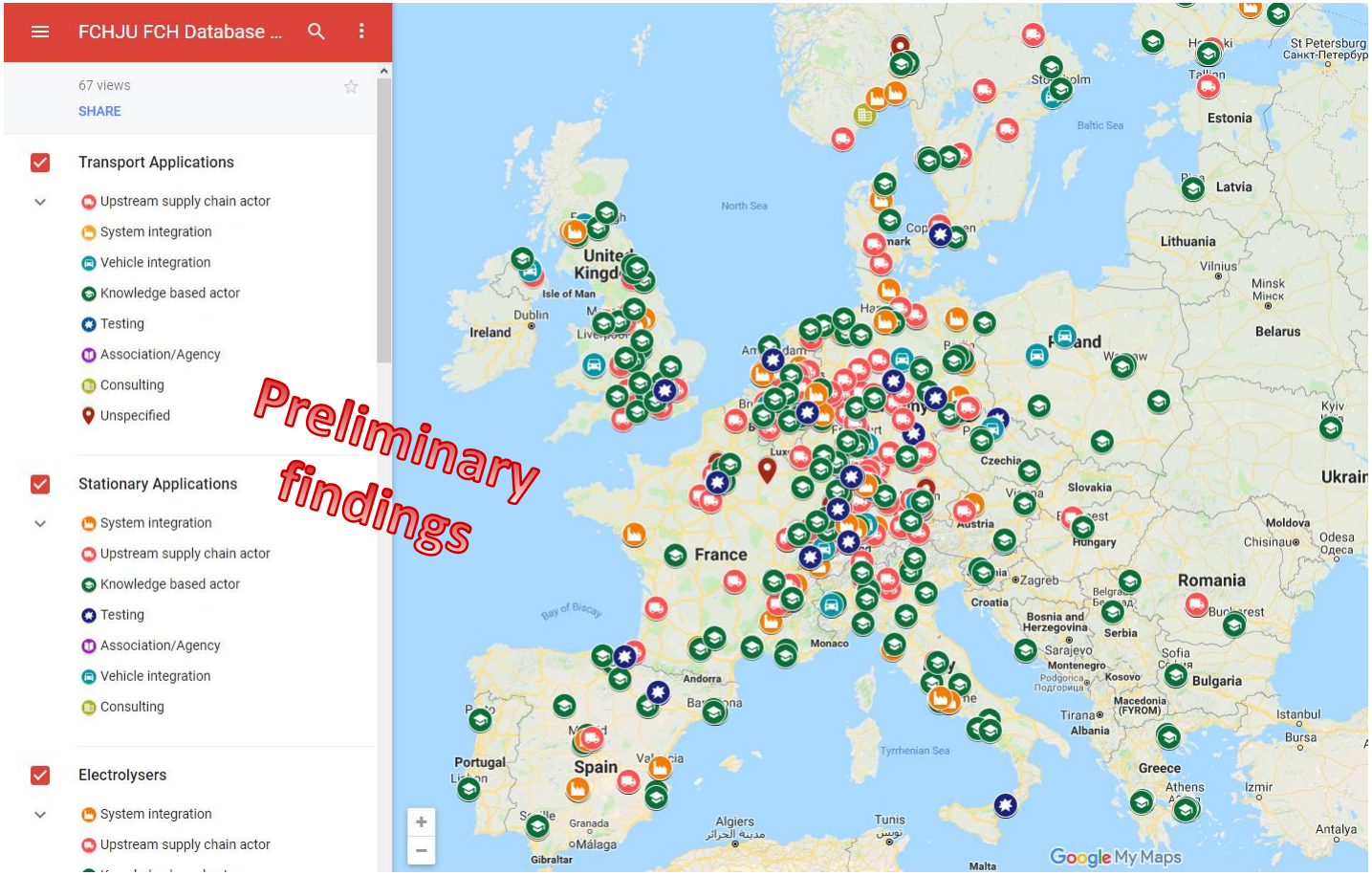
System level actors by application



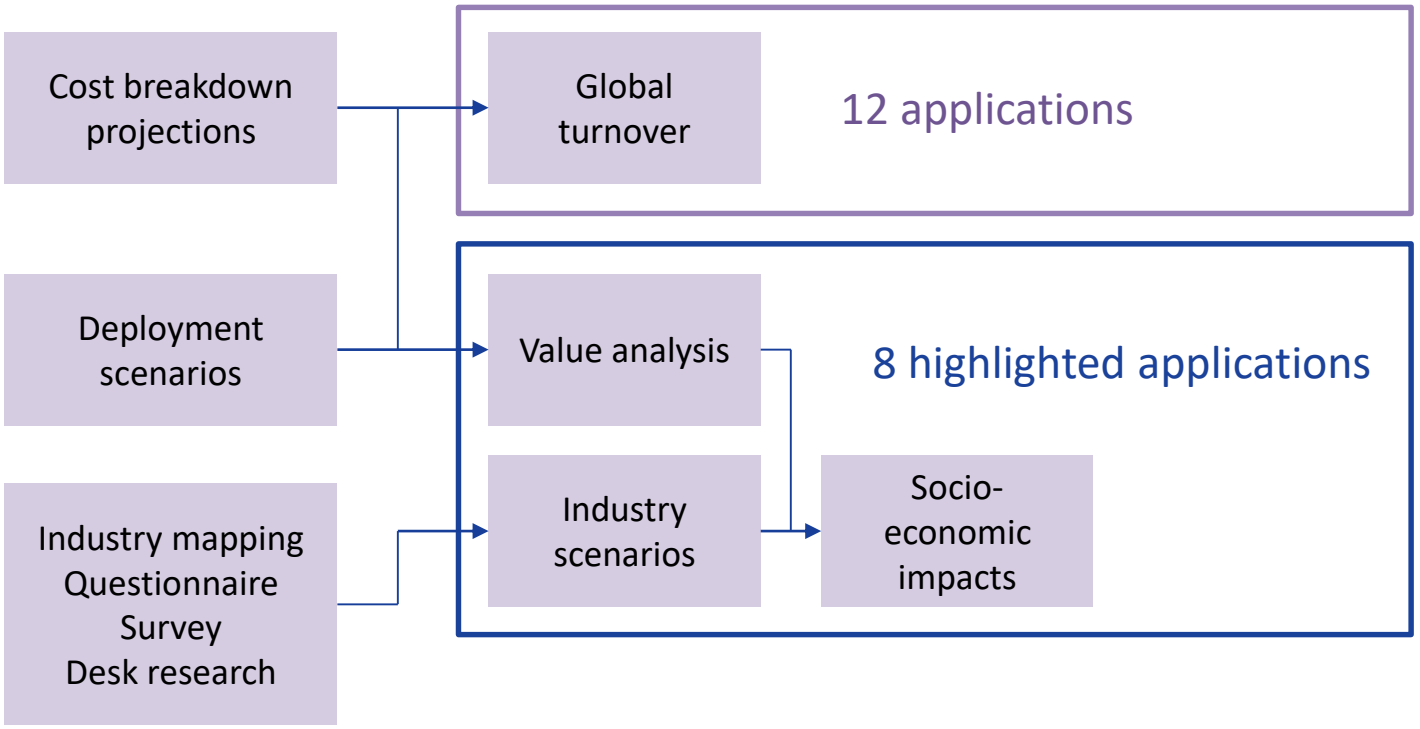
Component level actors by chemistry



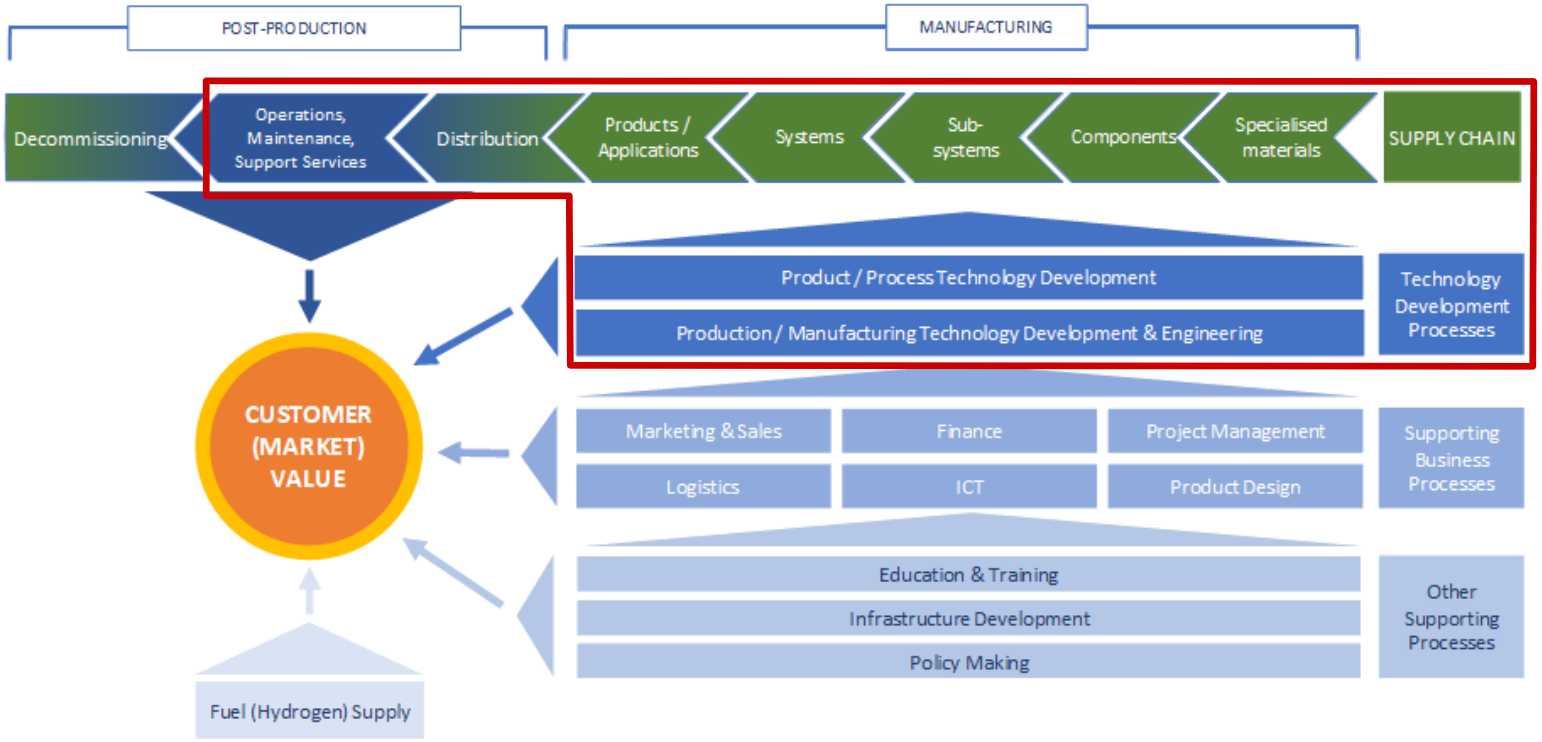
Updated map of supply chain and knowledge based actors will be published



Socio-economic value analysis draws on wide range of inputs



Value chain perspective captures a broader range of economic activities than manufacturing

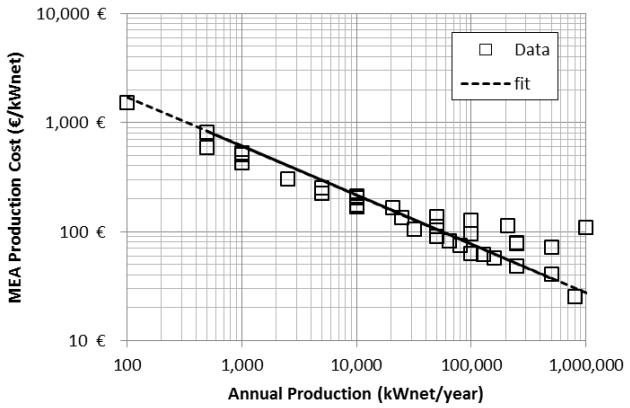


- **NB: Analysis only covers FCH-specific elements of applications**

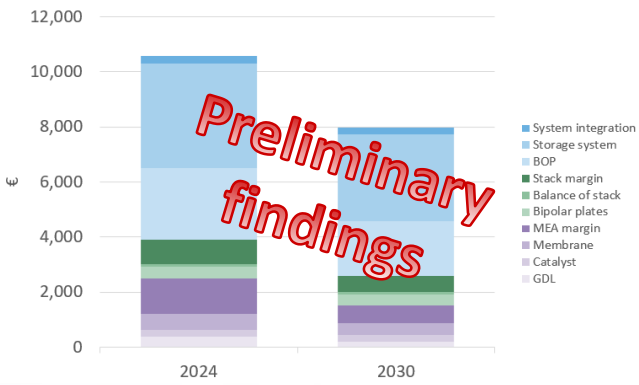
Cost breakdowns are based on publicly available data and coupled to deployment scenarios

- Based on review and analysis of publicly available data
- Costs for components broken down into
  - Material
  - Labour
  - Capex
  - Margin
- Coupled to deployment scenarios

Example cost correlation vs volume

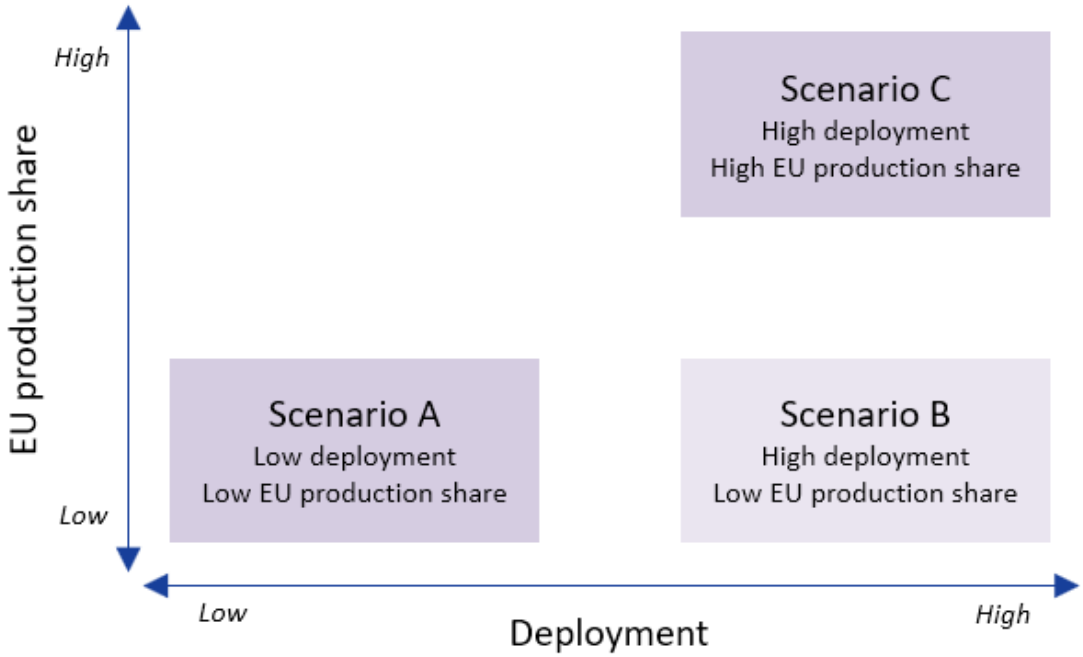


Example cost breakdown



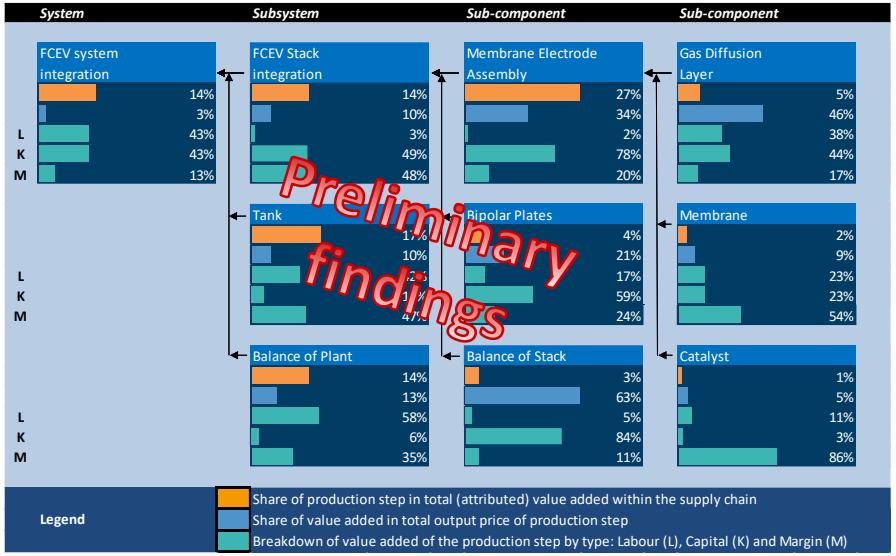
Industry scenarios explore realisable futures with high and low FCH deployment and EU shares

- Industry scenarios lay out possible **realisable** futures
  - High / low FCH deployment
  - High / low EU production share
- Market shares and margins adjusted by scenario, to reflect perceived market strength and competitiveness of EU actors



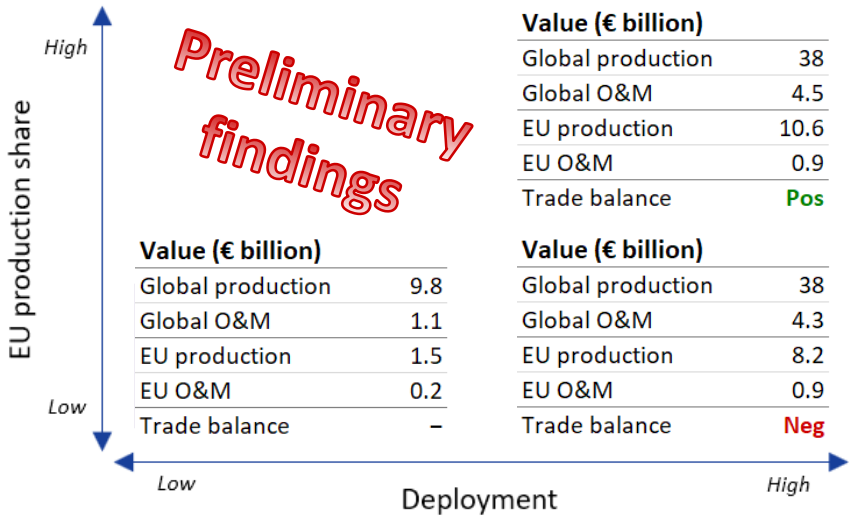
Economic analysis is based on value-added and covers FCH-specific elements of the applications

- Analysis captures value of **FCH-specific elements** of the application, e.g.:
  - **FC-system** in an FCEV **but not the vehicle**
  - **Complete HRS**
- Analysis captures value-added in terms of:
  - Labour (L)
  - Capital (K)
  - Margin (M)

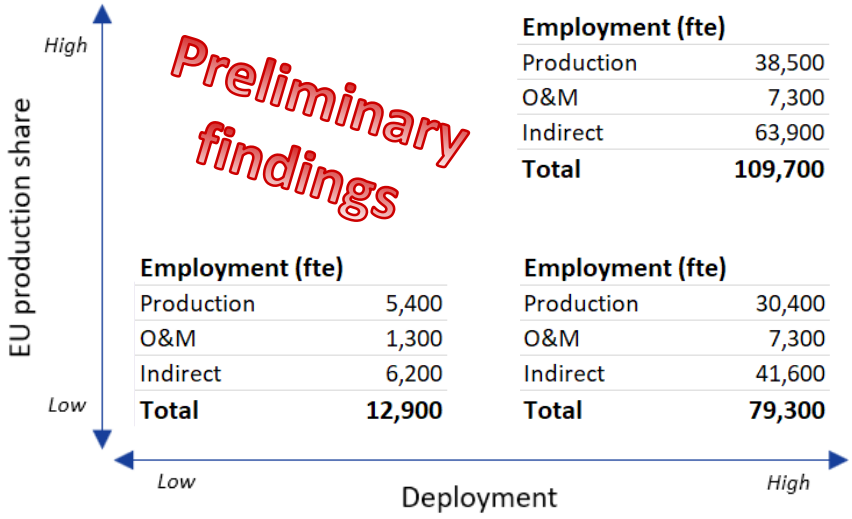


FCH applications can generate significant socio-economic value if deployment and EU role are strong

- EU production and O&M value of €2-11 billion in 2030



- Accompanied by creation of 13,000 to 110,000 jobs by 2030



Thank you!

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