Ports & MRE- what are the synergies?
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85% ships emissions while berthed
Summary / take home message

• MU = opportunity space yet to be FULLY exploited

• Significant synergies – triad of:
  ➢ Costs
  ➢ Human health
  ➢ GHG reductions

• Requires explicit MSP approach
  ➢ Recognition of value addition
  ➢ International champions / coordination
  ➢ Explicit approach

Significant scope to fight climate change

Sig social benefits!!
Social benefits

Beyond environmental:

• Port area enables added urban development

• Electrical network improvements - resilient electrical infrastructure to city

• SSE integrated with urban mobility - electric cars + buses,

• Electricity cheaper long run?
Interesting data...

A cruise vessel (12 MW) emits during 8 hours:

<table>
<thead>
<tr>
<th>Emission Type</th>
<th>Equivalent to</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.2 t NO(_x)</td>
<td>10,000 cars</td>
</tr>
<tr>
<td>30 kg PM*</td>
<td>6,000 cars</td>
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Mortality from CO, SO$_x$, NO$_x$ and PM generated by shipping

- Annually mortalities in EU increase from 49,500 (2000) to estimated 53,400 (2020)
- 50,000+ premature deaths annually in EU
- Health costs in EU increase from 58.4 bn Euros/year (2000) to estimated 64.1 bn Euros/year (2020)

Urban hinterland – port – MRE ECOSYSTEM
Ports/MRE MU
Opportunity Space Analysis

MU = f(policy, f(n)s, ownership)

Scope:
Type of link - ports & MRE?

Btn
❖ port functions
❖ ownership
❖ policy
Sources of data

• UK ports

• **Strategic docs**: Marine Policy; Marine Safety Codes; Commercial Strategy; Economic strategy; Investment plans; Spatial planning policy; Relevant spatial plans, etc.

• Data repositories: ports directories (UK Ports, 2018); OWF directories (4C Energy portal); and databases/repositories of key institutions (e.g. TCE, 2018; Crown Estate Scotland, 2018).

• Interviews
Signposted key areas of synergy – “strategic”

• Streamlining policy objectives – RE, health, GHGs

• Cost rationalisation

• Deepen policy reach / action / output

• Systems? Urban hinterland vs marine coastal vs socio-econ & env

• Human health / welfare
Synergies: 1
Priority locations (EC, 2006)

- air quality limit values exceeded
- high levels of noise, vibrations & nuisance
- near residential areas
- EC, 2013: Clean Power for Transport: alternative fuels in urban areas with air pollution issues
- Legislated Zones (e.g. ultra low emission London Zone; Clean Air Zones).
Synergies 2: Pollution reduction targets; **ports forefront of delivery**

- Ships - 4% EU CO₂ in 2010

- CO₂ (per tonne/km) by 20% (2020) 50% (2050)

- Dir 2012/33/EU - sulphur content of marine fuels

- Reg (EU) 2015/757 - monitoring, reporting, verification of CO₂.