Legal issues surrounding offshore renewable energy development in the British Isles rev. 1

Glen Plant
Offshore Renewable Energy Sources

- Wind, captured by ‘marinised’ wind turbines
- Tidal range, captured by barrages
- Tidal stream, captured by tidal fences or tidal stream turbines
- Wave, captured by a variety of (terminator, point absorber or attenuator) devices
- Ocean Thermal Energy Conversion (OTEC), captured by drawing seawater up from the deep ocean ‘mixed layer’ and converting temperature differential into energy
- ALL = (non-storable) ELECTRICITY fed onshore to GRID via cabling & marine/terrestrial substations
UK RESOURCE

• Theoretical Practical Resource UK Waters
  - Wind
    fixed 406TW/h
    floating (>100NM o/shore) 1533TW/h
  - Tidal
    range 26TW/h
    stream 116TW/h
  - Wave ~40TW/h
  TOTAL 2100TW/h

Present generation (all sources) 375TW/h

• Resource (i) developed/(ii) in development:
  – Wind (3 Rounds) (i) 1.3GW/h; (ii) 33 GW/h. Capacity factor 30.9% (2008)
  – Wet renewables (2 Rounds) (i) Negl.; (ii) 1.82GW/h
London Array 1GW Wind Farm
Different Source Characteristics Affecting Regulation

• Spatial: wind and wave require only adequate and reliable wind speed (so can be large inshore and esp. offshore); tidal stream and esp. range more geographically constrained and inshore

• Wave and tidal more likely to be ‘exclusive’ in that extraction might modify resource to detriment of other sites

• Tidal and esp. wave more likely to have low freeboards and larger subsurface profiles than wind turbines, with implications for other surface users and wildlife
Why examine regime now?

- new EU imperatives driving change
- offshore wind poised for take off?:
  - 36 States plan 1000 farms + total installed capacity > 650GW
  - UK world leader in capacity installed (1.3 of total 3.7 GW) and being built (approx. 1GW). Aiming for 33GW by 2020
- scale of UK Round 3 wind development = new marine spatial competition and infrastructure pressures
- UK has technological lead in wet renewables which moving towards commercial stage (medium- to long-term: 2020-) . Demonstration Rounds to bridge prototype/commercialisation gap:
Complicating factors

- Complexity of cross-cutting themes (*cf.* EU legislation)
- Progressive political devolution = different rules in Sc & NI TW to E&W (and minor differences between E & W TW)
  - single UK 200NM ‘REZ’ (soon to be EEZ?), but Anglo-Scots division of functions, splitting wind resource 60:40
- Policy reviews and changes following the formation of new Coalition Government
- Functional division: Crown Estate as landlord (+ 1961 Act duties), granting leases or development agreements; and Government as regulator
UK Renewable Energy Zone

Legend
- Renewable Energy Zone
- UK Territorial Sea
- Tidal waves

Updated by the Law of the Sea Division,
United Kingdom Hydrographic Office
January 2006

The Renewable Energy Zone (Designation of Area) Order 2004
UK Development to Date

WIND
Round 1, 2001: \( \leq 390\text{MW} \) (now 675\text{MW}) from 19 (now 13) E,W,Sc,NI TW demo projects
Round 2, 2004: \( \leq 6\text{GW} \) (now 7\text{GW}) from 17 projects on sites in 3 Development Areas in E TW/200 NM zone
Round 3, \( \leq 25\text{GW} \) from 2 Sc & 8 E SEA-identified Development Zones in 200NM zone or straddling 200NM zone & TW
Sc TW, \( \leq 6\text{GW} \) from 10 (now 7) sites in Sc TW

WET RENEWABLES
Round 1, 2010: (up to 1,6GW from 10 projects). Sc TW in Pentland Firth and around Orkney.
Round 2, 2011(up to 120\text{MW} from 4 projects)
8\text{GW} by 2020?
Policy Imperatives 1

European Imperatives (the strongest)

- Arts. 191 and 2 (Environment) and 194 (Energy) TFEU
- Climate and Energy Package: overall “(i)20-(ii)20-(iii)20 target”; target (iii) = 33% for electricity;
  80% GHG reduction by 2050 = 95-100% decarbonized power sector
- Third Internal Energy Market Package and promoting interconnection of energy network: North Sea
- Integrated Maritime Policy
- Environmental Management Policies: SEA, EIA, Nature Conservation (SPAs and SACs/N2K sites)
Possible Northern Seas Wind/Market-generated interconnected grid

2009: Europe's offshore wind concession and development zones
UK Government Imperatives

• **Climate Change and Energy:**
  Prefers mandatory target (i) of 30%
  Unilateral mandatory target (i): 34% by 2020; 80% by 2050
  Prefers higher target (iii). EU-set UK target (iii) of 15% by 2020 (= 40% from low carbon source electricity)
  Unilateral target (iii) of 30% (= most from offshore wind)

• **Energy Market**
  - Fully Liberalised
  - Key Electricity Market Reform proposals Dec. 2010 (Spring White Paper)
  - Promise to deliver offshore wind grid
  - Accelerated ‘connect and manage’ grid connections for ORE

• **Planning Reform**: major infrastructure projects (ORE > 100MW) speeded through IPC (but IPC to be replaced = uncertainty)

• **IMP: Marine Spatial Planning and Consents/Licensing Simplification**: MMO

• **Environmental Management**: implementing SEA/EIA/Habitats & Wild Birds Directives. Plus national MCZs.
ENVIRONMENTAL DIMENSION:
UK MPAs
Regional Imperatives: Scotland

• **Climate Change and Energy**
  - mandatory GHG emissions reduction targets: 42% by 2020; 80% by 2050;
  - renewables targets of 20% of all energy and 50% of electricity by 2020

• **Planning Reform** and **Marine Spatial Planning** and **Consents/licensing simplification** parallels E&W’s
International Imperatives

• **Global** imperatives influencing European and national/regional policies:
  - UNFCCC/Kyoto Protocol targets
  - Foreign ships’ rights of navigation (IP/TP in TS; FofN in 200NM zone)
  - CBD treaty provision/Decisions on system of MPAs for biodiversity conservation; WSSD Plan of Implementation
  - UNESCO MSP work

• **Regional** imperatives:
  - OSPAR Convention Annex V/Recommendation 2003/3 (amended 2010) on ecological networks of MPAs
  - EU common fishing rights in UK waters under CFP, including foreign fishermen treaty rights in outer 6-12NM TS (all under review by end 2012)
UK Government Needs

- 29GW of offshore wind power development (Rounds 1-3) to meet targets (i) and (iii) by 2020. Aiming for 33GW, and so:
  - Install 6-10,000 turbines (3 per week to 2020) = average build rate of 2.2GW per year
  - £75-137bn investment in offshore wind by 2020
  - Further Rounds
INDUSTRY NEEDS

COST DRIVEN

Key drivers:
- turbine manufacturing capacity (but US v China WTO complaint)
- pre-construction financing (front-loaded technology, construction and O&M risks and back-loaded returns)
- supply chain investment (manufacturers seeking development assurances before investing)
- priority or at least guaranteed access to a grid fortified/extended as necessary
- efficient consenting

Other important drivers:
- port infrastructure (for manufacture, construction and servicing)
- foundation/floating technology for deeper water
- a fair and certain market to encourage investment: adequate carbon price, financial incentives to offset hidden fossil fuel subsidy, etc.
MAJOR INFRASTRUCTURE PLANNING: England

• Planning Act 2008: new integrated planning system for E&W nationally significant infrastructure, including ORE projects over 100MW in English TW or 200NM zone
• To improve and streamline process to reduce uncertainty, cost and delay (to < 1 year)
• IPC to base decisions on ORE primarily on relevant NPSs (TBF June 2011: in interim IPC recommends to S of S on basis of draft) - and secondarily on UK MPS and any MPs in place
• Operates alongside TCPA and MMO planning regimes: duty to cooperate

BUT uncertainty:
• Unelected IPC to be replaced with Major Infrastructure Planning Unit within the Planning Inspectorate (final decision by Secretary of State) by April 2012
• Promise of new National Planning Policy Framework by April 2012
ENERGY NPSs (England)

• Draft Overarching NPS for Energy (EN-1) to be read in conjunction +
• Draft NPS for Renewable Energy Generation (EN -3) one of 6 technology-specific NPSs.
• (EN-5 on Electricity Networks relevant to associated onshore elements)

• EN-3 has 5 key principles:
  - Give consent if development helps meet need and is in accordance + NPS
  - Have regard to local impact reports and other relevant and important matters
  - Take account of national, regional and local benefits
  - Consider adverse impacts (including cumulative and long term) and mitigation options
  - Refuse consent if adverse impacts (after mitigation) outweigh benefits

• Complex nature of offshore wind development = Rochdale Envelope approach (assess maximum potential adverse effects, just in case)
MAJOR INFRASTRUCTURE PLANNING: Scotland

  - includes Sc strategy for renewable energy and related infrastructure development
  - identifies key strategic infrastructure needs, incl. grid capacity (and ports) to effect ORE development
UK MARINE SPATIAL PLANNING: Rationale

- EU imperative
- Tool to achieve environmental targets and sustainable development generally
- Investor and stakeholder certainty
- Many activities, some of them new, competing for ocean space further and further offshore
- Growth of MPA networks
UK Marine Policy Statement and Marine Plans

- Marine and Coastal Access Act 2009, Part 3 & Schedule 6 (& Marine (Scotland) Act 2010—Sc TW) create hierarchy over time:
- UK Marine Policy Statement (MPS) just released: high level overarching marine policy framework for whole UK marine area (concordats with devolved administrations)
- Marine Plans (MPs) rolled out by 2021 for 8 regions: E, W, Sc and NI ‘inshore’ (TW) and ‘offshore’ (200NM zone); English region sub-divided into 10 plan areas
  - state relevant authority’s detailed policies and spatial guidance
  - 1st 2 E plan areas (Eastern in- and off-shore)
  - physical overlap with terrestrial plans = ICZM
First Two Marine Plan Areas (E)
Legal questions prompted by UK Marine Spatial Planning

• Degree of prescriptiveness in Marine Plans
• Extent to which IPC and its replacement will ‘have regard’ to any Marine Plans
• Disputes about Marine Plans in legal proceedings brought by an aggrieved person under Ss 62 and 63
• Influence of MPAs—MCZs + N2K sites
• Fisheries—interaction with EU competence under CFP
• Involvement of UK Government in Marine Plans for Scottish offshore region (200NM zone), e.g. re non-devolved energy issues
MARINE LICENSING: old system

• Problematic old system involving up to 7 licenses/consents from several bodies (only some of which cld be combined):
  1. Land-based elements consents (up to 4), notably planning permissions.
  2. Marine consents:
     FEPA = Deposits
     CPA = Regulates marine activities in terms of navigational safety
• 3. specific activity licenses, for OREIs
   Either: S. 36 Electricity Act, extended to 200NM zone
   Or: TWA Order, not extended
   New S.36A Electricity Act makes slower, costlier TWA Orders redundant (except in Wales)
• Only loosely linked to planning regime
• Complex, lack transparency, duplicative, short-termist
Marine Licensing: new system

- Marine and Coastal Access Act 2009 Part 4 enables new, streamlined system of marine licensing (consents) for ORE projects <100mw (> 100MW goes to IPC/MIPU):
  - UK MPS provides overarching policy framework
  - MPs will translate MPS into detailed policy and spatial guidance for each marine plan area
  - Licensing decisions from 6 April 2011 taken by MMO (or Marine Scotland – Licensing Ops Team) in accordance with MPS and MPs

SPEED: E& W hope < 1 year; Sc < 9 months

PROBLEM: IPC’s abolition: “Although the coalition states that this is aimed at speeding up the planning process, in the short term it may mean delays to projects while a new system was created.” (AMA Research, 2010)
Marine Licensing: Changes

- A marine licence new main consent for most marine projects: subsumes CPA and FEPA licences. MMO to administer this together with S. 36 consents, but not for major infrastructure projects (at least 10 offshore wind farm sites in IPC pipeline).
  - means no single repository of expertise.
- A marine licence is for whole life of project
- New pre-application service for complex projects
- Wider range of enforcement tools (adding statutory notices and monetary penalties), emphasising compliance, minimising harm and remediation
- Exemptions clarified
- Greater transparency: plan-led decisions, appeals and case tracking
OBJECTIONS AND USE ACCOMMODATION

TW: interference with radar flight paths and marine bombing ranges (MoD objected to all – later 4 – Round I projects); loss of view/amenity affecting property values; loss of fishing grounds; masking navigational aids; wildlife impacts

200NM zone: oil and gas licensed areas overlap with development zones; navigation; fishing

Some conflicts: e.g. good lighting to warn ships and aircraft but minimised lighting to aid birds and bats

MoUs/Templates/Liaison Groups important (eg no nautical rep. on body selecting Round 2 Development Areas).
MoU on Aviation Radar and Wind Turbines (Mitigation Issues)

AVIATION PLAN
FLOWW: Fisheries Liaison with Offshore Wind and Wet Renewables
NOREL: Nautical and Offshore Renewables Liaison Group
COLLISION AVOIDANCE

- Ships (allision and air draught issues) and low-flying aircraft. Learning process since first (N. Hoyle) radar survey
- Safety zones to be designated by individual Order and minimised
- S. 100 Energy Act 2004 OREIs not to interfere + ‘recognised sea lanes essential to international navigation’
  - Apart from IMO TSSs, not easy to identify without traffic analysis
  - Consider additional IMO routeing measures
    Not odd ideas (exclusion zones; Clearways)
- MCA Guidance Notes on: Navigation Safety Issues for proposed UK OREIs; and for Mariners Operating in Vicinity UK Offshore Windfarms
  - Draft Windfarm ‘Shipping Route’ Template
MCA WINDFARM SHIPPING ROUTE TEMPLATE

- Median or Centre Line
- Shipping Route width
- 90% of traffic
- Turbine Boundary
- Nearest edge(s)
- Further edge(s)
<table>
<thead>
<tr>
<th>Value of B</th>
<th>Factors</th>
<th>Risk</th>
<th>Tolerance</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 0.25nm (500m)</td>
<td>500m inter-turbine spacing = small craft only recommended</td>
<td>VERY HIGH</td>
<td>INTOLERABLE</td>
</tr>
<tr>
<td>0.5nm (926m)</td>
<td>Ships’ high traffic density domain</td>
<td>HIGH</td>
<td>TOLERABLE IF ALARP</td>
</tr>
<tr>
<td>1 nm (1852m)</td>
<td>Min. dist. to parallel TSS boundary</td>
<td>MEDIUM</td>
<td>TOLERABLE IF ALARP</td>
</tr>
<tr>
<td>3.5nm (6482m)</td>
<td>Min. dist. between turbines opposite sides of a route</td>
<td>LOW</td>
<td>TOLERABLE IF ALARP</td>
</tr>
</tbody>
</table>
DECOMMISSIONING

• Art. 60(3) UNCLOS duty to ‘remove to ensure safety of navigation’ taking into account IMO GAIS

• S. 105 Energy Act 2004 as amended by 2008 Act
  - Emphasis on continuing financial responsibility
GRID ISSUES

- £4.7bn **to reinforce** grid, adding 45GW of generation (34 of it wind) and optimising integration of onshore and offshore development, saving on offshore network cost

- £10bl+ to **connect Round 3 wind farms** alone to grid

- Early agreement for grid connection much prized
  - former queue: pressure on London Array to complete appropriate assessment + mitigation in SPA fast to keep 415MW grid connection
  - solved by ‘connect and manage’?
OFFSHORE GRID NETWORK

• Before Energy Act 2008 delay to 2016 for consented projects
• Under the Act, Ofgem allocating offshore wind farm transmission link operating licences by competitive tender, in rounds:
  • **First round** Aug. 2010: 7 projects + total 2GW
  • **Second round** Nov. 2010-Q2. 2011: 3 consented Round 2 projects + total 2.8GW

• In Scotland, Ofgem granted first (20 year) licence to Transmission Capital Partners for Robin Rigg
CONCLUSION

• Round 1 of wind: Sea-based Klondyke for land-based industry. How not to do it.
• Round 2: ‘Government/Crown Estate Knows Best’. 200NM zone powers taken, consents improved and limited SEA, but little use accommodation, e.g. DAs chosen +out nautical consultation/reliable data
• Round 3 much better