

# Renewable Energy Policy Group

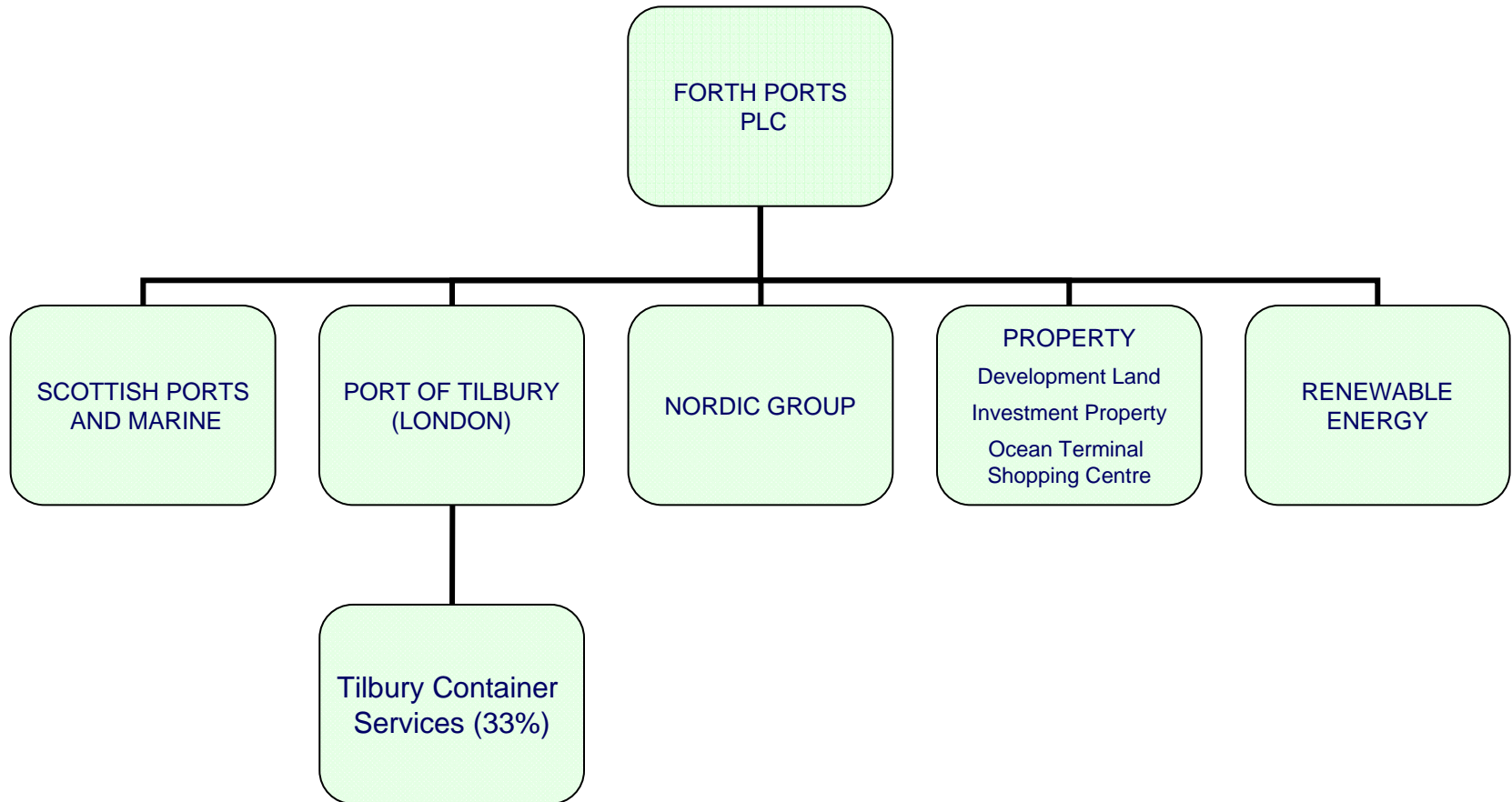
## Forth Ports PLC

Presentation by

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# The Forth Ports Group



# A Rich Asset Base

Freehold ownership of land next to deep water and centres of population:

Tilbury	725 acres
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Scotland	over 1,000 acres
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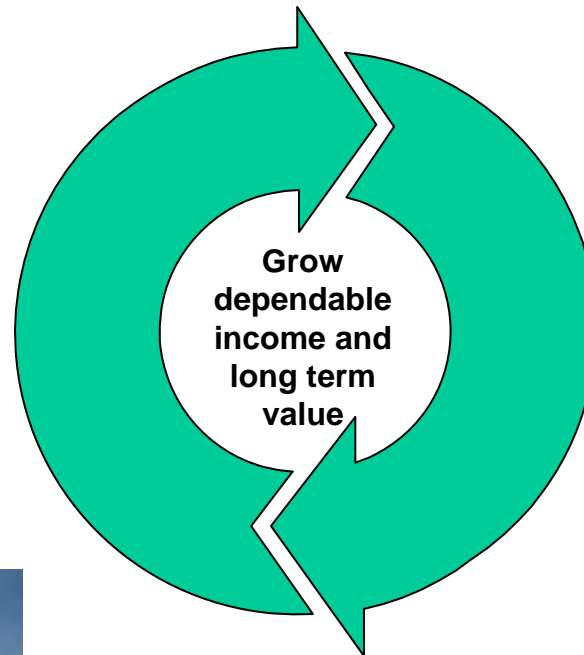
Seabed	4,500+ acres
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# Background

## PORTS

- Scotland's largest port operator
- Handles over 40million tonnes of piped and dry cargo each year
- Also provides pilotage and towage services
- Grangemouth, Scotland's largest container port, handles over 150,000 containers a year
- Forth and Tay handle **c.50%** of Scotland's GDP



## PROPERTY

- 400 acres of land at Edinburgh's waterfront
- Plans to develop Edinburgh's only major area of brownfield land into sustainable quarter with relocation of Leith's industrial base to other ports in Central Scotland
- Land bank across all sites supports trade growth, supply chain efficiency and key industries



# Marine Division



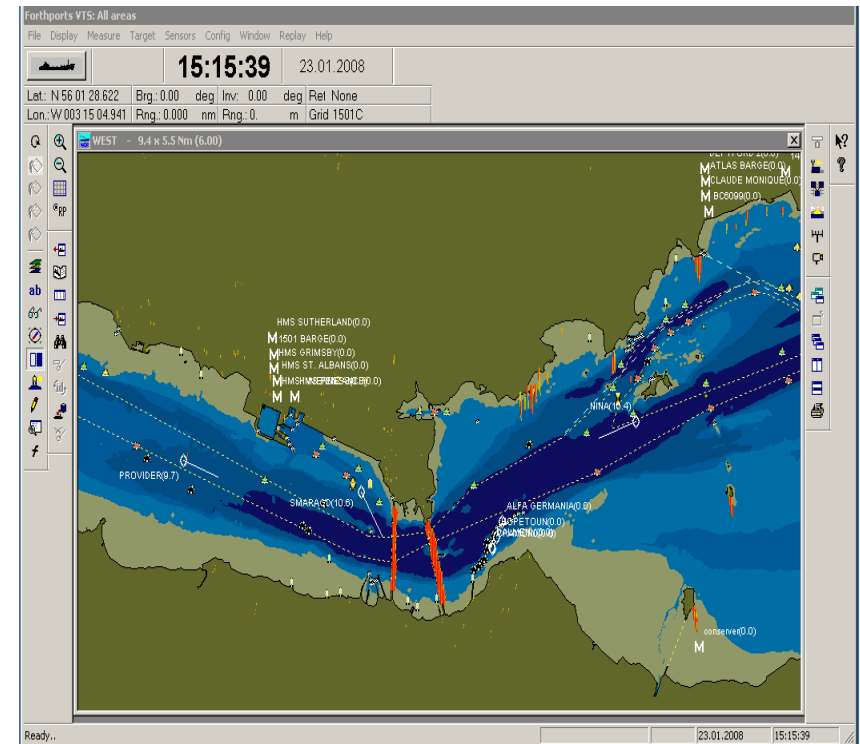
# Role of The Port Authority

- Statutory responsibility for harbour/port:
  - Byelaws legislation
  - Pilotage
  - Conservancy
  - Safety
  - Environmental protection
  - Emergency response
  - Oil spill response
- Technical and expert marine advice to Directors & Port Management
- Advise on marine matters
- Total annual spend c.£10m



# Forth & Tay Navigation Service

- Purpose built for Vessel Traffic Service (VTS)
- Manned 24/7 365 days of the year
- Duty Officers are all qualified mariners
- VTS Operators all trained to V103
- State of the art radars and tracking systems
- VHF Radio network
- Automatic Identification System (AIS)
- Coverage
- CCTV
- Meteorological and hydrographic monitoring
- Accredited to ISO 14001 for Environmental Management



# Pilotage

- Pilotage compulsory for all vessels over 45m in length
- Pilots all Master Mariners with command experience
- River Forth            31 pilots
- River Tay                3 pilots
- River Forth            3 pilot boats
- River Tay                2 pilot boats



# Conservancy Aids to Navigation

- Local Lighthouse Authority
- Level of service audited by Northern Lighthouse Board
- Responsible for over 100 Aids to Navigation
- Aids to Navigation include lighthouses, buoys and beacons
- Maintenance Contract for navigation aids recently awarded to Briggs Marine



# Conservancy Surveying and Dredging

- 90 surveys carried out using survey vessel 'Calatria'
- In house charts produced and data provided to UK Hydrographic Office



- Dredging to maintain navigational channels undertaken throughout the year
- In 2008 over 1.2 million cu3 dredged, primarily from Grangemouth entrance



# Towage

- 6 towage operators licensed by Forth Ports to undertake towage operations
- 14 tugs available for harbour towage, with bollard pull up to 120 tonnes
- Towage operations take place at:
  - Hound Point
  - Braefoot Bay
  - Leith
  - Grangemouth
  - Rosyth
- Tugs fitted with fire fighting and oil spill response equipment

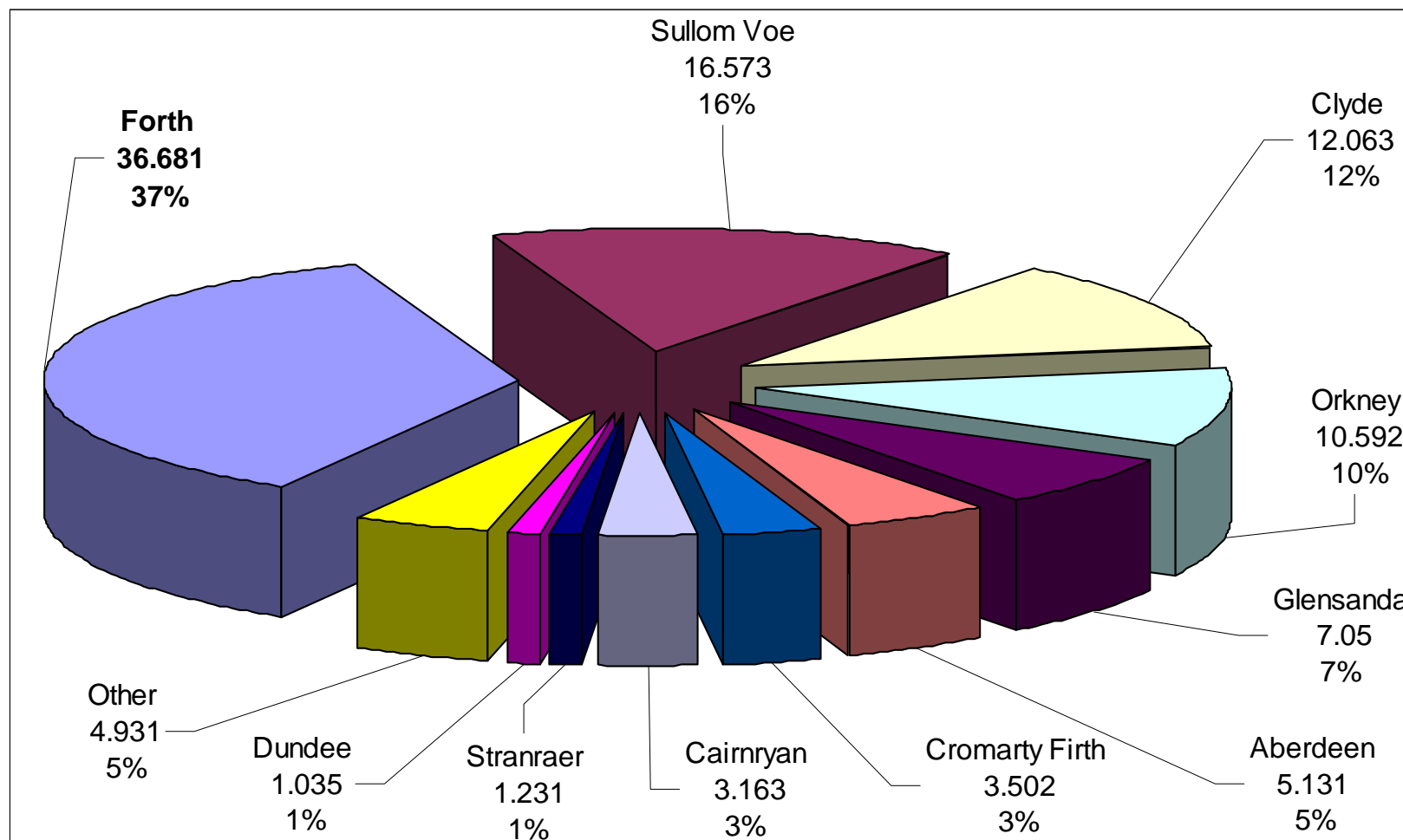


# Scotland's Ports

- 102.0 million tonnes handled through Scotland's ports in 2007
- Forth Ports accounts for 37% of Scotland's tonnage
- Approximately 70% of total is oil and gas
- Ports vital to the Scottish economy



# Scottish Ports by Tonnage - 2007



# Waterfront Regeneration

We will create more jobs and value through the regeneration of the waterfront

- A 400 acre brownfield site
- 20,000 new homes
- 25% affordable
- Over 100,000 sq.m. – new office space
- 50 acres – industrial
- Community, retail and leisure facilities



# Economic Benefit

	<b>Leith Docks</b>	<b>Forth Ports</b>	<b>All Waterfront</b>
<b>Total investment</b>	£3.3 billion	£5.4 billion	£6.5 billion
<b>GVA growth for the local economy p.a.</b>	£194m	£267m	£554m
<b>GVA growth for the Scottish economy p.a.</b>	£248m	£342m	£713m
<b>Gross direct employment for Edinburgh</b>	11,600	16,000	32,394
<b>Council Tax revenue p.a.</b>	£28m	£42m	£56m
<b>Business rates revenue p.a.</b>	£28m	£36m	£56m



# Previous Developments

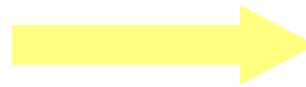
Henry Robb Shipyard



Ocean Terminal



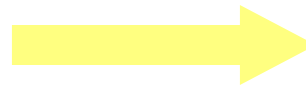
East Old Dock



Rennie's Isle



East Old Dock



Scottish Executive



# Renewable Energy

We will improve the natural environment through renewable energy projects

- Committed to reducing carbon liability
- Exploiting the asset base and potential of the Forth and Tay
  - Onshore and offshore wind
  - Energy from waste
  - Recycling
  - Import of raw materials
  - Facilities/land bank
- Dundee - 60 acre renewable energy park



# Port Investment / Supply Chain Development

**We will improve Scotland's routes to market through supply chain investment**

- Forth and Tay facilities handle more than 50% of Scotland's GDP
- Grangemouth is Scotland's largest and busiest port and a gateway to world markets
- £25 million invested in Grangemouth container terminal over last three years – future capacity for 10+ years
- Productivity/efficiency for key industries
- Plans for 100 acre Distribution Park (Tri Modal).
- Issues
  - Feeder capacity (Hub Ports)
  - Coastal links (motorways of the sea)



# Forth Energy

- JV between Forth Ports PLC and Scottish & Southern Energy PLC
- Propose to develop a number of renewables projects;

Wind - Port of Grangemouth, Dundee and Tilbury

Biomass - Port of Grangemouth, Dundee, Rosyth, Leith and Tilbury

EfW - Port of Tilbury

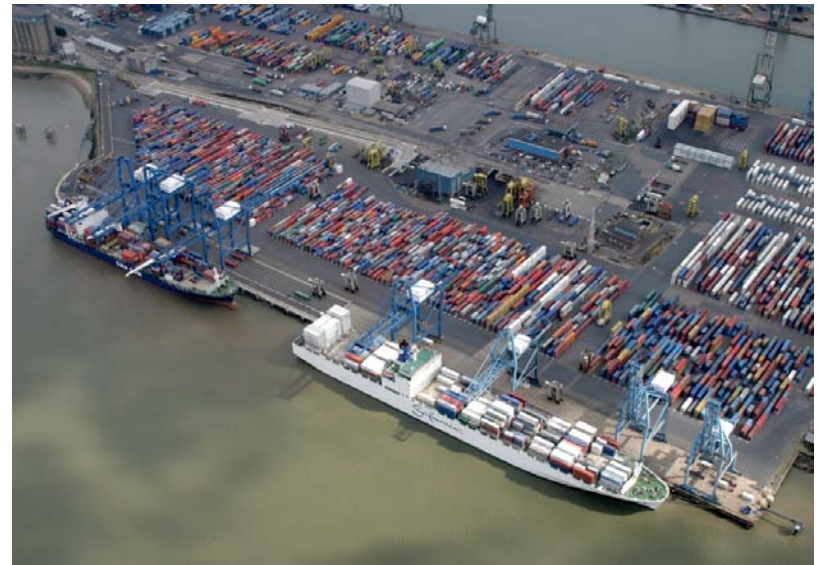
PV - Port of Tilbury



# Scottish Ports Biomass Plants

## Why Ports?

- Close to Dense Urban Environment
  - Grid connection capability
  - Potential heat customers
  - Capable of handling significant volumes of fuel stock
- $1.0 \times 10^6$  tonnes biomass fuel;
  - 100,000 road trucks
  - 120 (medium) bulk carrier
    - 3 vessels per week or the use of larger vessels reduce to 2 or 1.5 vessels per week



# Scottish Ports Biomass Plants

## Is it sustainable?

- Carbon Intensity (Life Cycle) (1)
  - Marine transport = 7 gCO<sub>2</sub>e/tonne/KM
  - Road transport = 86 gCO<sub>2</sub>e/tonne/KM
- Biomass Combustion
  - 89 – 93% less CO<sub>2</sub> produced than the equivalent sized UK coal plant on a life cycle basis
- Biomass Sources
  - Sourced from sustainability managed forestry
  - Produced specifically for paper or energy industry



(1) DEFRA GHG Conversion Factors (July 2008)

# Biomass

## Consenting Procedure

- Scottish Ministers consent under Section 36 of the Electricity Act 1989
  - To construct and operate
  - Deemed planning permission under Section 57(2) Town & Country Planning (Scotland) Act 1997
- Statutory Consultees
  - Local Authority
  - SNH
  - SEPA



# Electrical & Thermal Output

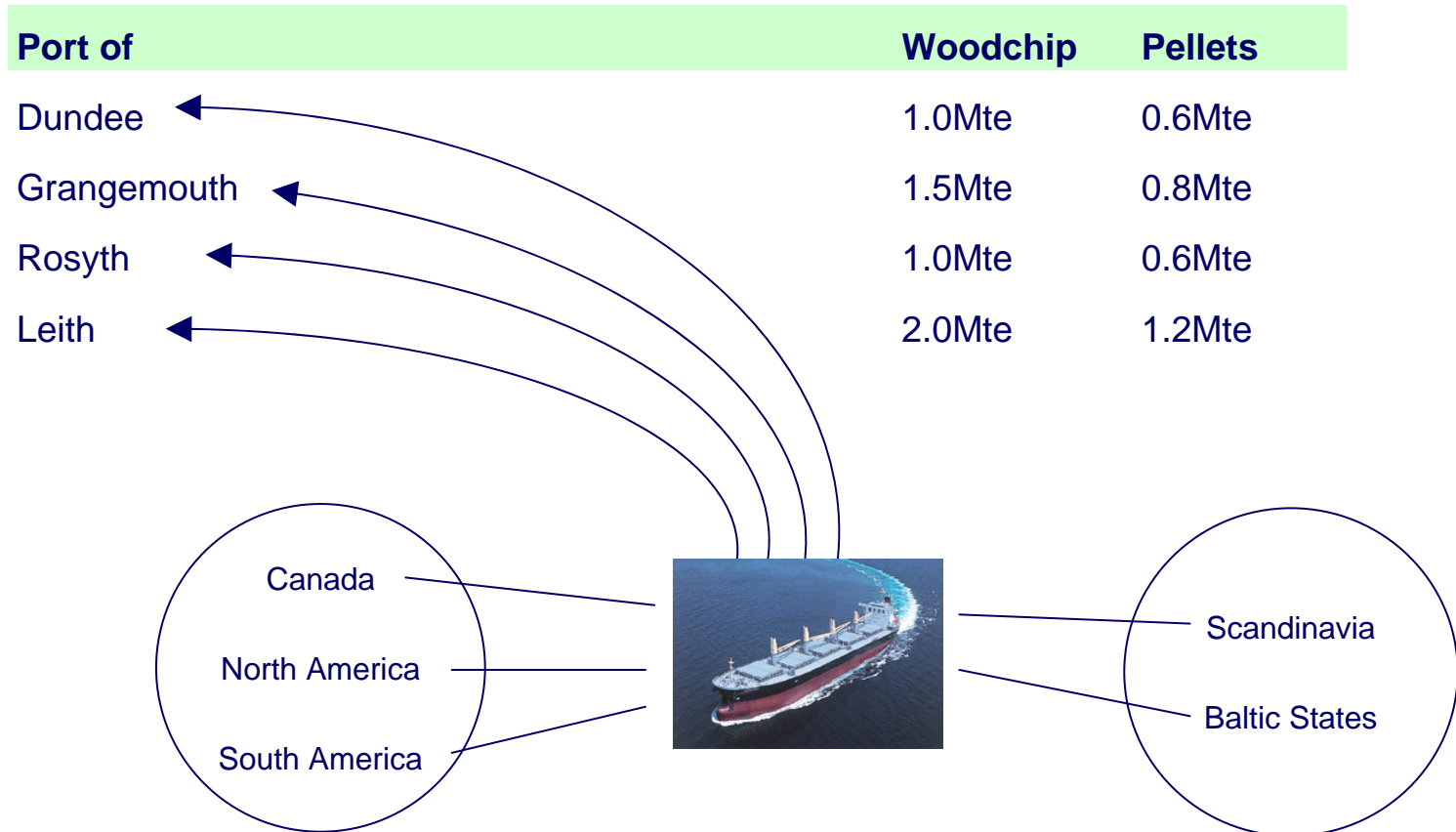
Port of	MW(e)	MW(th)
Dundee	100	30
Grangemouth	100	200
Rosyth	100	30
Leith	200	60
	<b>500MW</b>	<b>320MW</b>

- Low Carbon Output of 0.5GW electrical base load
- De-carbonised electricity for other community energy technologies, e.g. heat pumps
  - 86% City of Dundee
  - 92% Falkirk Area
  - 42% Fife Area
  - 54% City of Edinburgh
- 2.4 TW/hr of renewable heat ie 30% of Scotland's target of 6.4 TW/hr of renewable heat by 2020 (11%)
  - 1,000 Dakota Hotels
  - 115 Hospitals (500 bed)
  - 118,000 Domestic Dwellings



# Fuel

Predominately imported virgin wood from sustainable sources



# Dundee



## Plant Characteristics

- Capex estimated at £325m
- Feedstock
  - 1.0 Mte woodchip or
  - 0.6Mte pellets
- 100 MW electrical
  - 86% of the City's demand
- 30MW thermal
  - six major hospitals or
  - 160,000 homes
- Application submitted
  - 17 August 2010



# Grangemouth



## Plant Characteristics

- **Capex estimated at £465m**
- **Feedstock**
  - 1.5Mte woodchip or
  - 0.8Mte pellets
- **100MW electrical**
  - 92% of Falkirk area demand
- **200MW thermal**
  - 23% of Scotland's 2020 target
  - 20% of Ineos Refinery demand
- **Application submitted**
  - 21<sup>st</sup> September 2010



# Rosyth



## Plant Characteristics

- Capex estimated at £325m
- Feedstock
  - 1.0Mte woodchip or
  - 0.6Mte pellets
- 100MW electrical
  - 42% of Fife's demand
- 30MW thermal
  - Limited demand but business development opportunities for the Port
- Application submission
  - 9<sup>th</sup> November 2010



# Leith



## Plant Characteristics

- Capex estimated at £600m
- Feedstock
  - 2.0Mte woodchip or
  - 1.2Mte pellets
- 200MW electrical
  - 55% of the City's demand
- 60MW thermal
  - 20 000 homes or
  - 12 major hospitals
- Application submission target date
  - 11 January 2011



# Local Heat / Cooling Opportunities

