Case Study

Heat Pumps
Private House, Strachur, Argyle

- 1830's building
- replace existing heating & hot water system
- electric wall mounted radiators & immersion heater
- Cost £3,000 to heat over a winter
The Options

**Oil/Gas**

- Boiler with radiators
- Ugly & ineffective
- Annual fuel £££
- Replacement parts ££
- High Carbon Footprint

**Heat Pump**

- Heat pump, under floor heating & few radiators
- Invisible & effective
- Annual electricity £
- Replacement parts £
- Low Carbon Footprint

SCHRI Grant

**Both £15/16,000**
Loch Fyne

Our Energy Source
On the sea bed

8 x 100m coils of 32mm diameter pipe
Flow & Return 63mm diameter
Closed loop

Piped up the garden
Under the drive
And into the house

4.75kw in
19kw out
'Waterfurnace' heat exchanger

Underfloor heating tank
Underfloor heating manifold

Hot water tank
Nice dry, warm, house and hot water

Almost 4 x return on energy input
<table>
<thead>
<tr>
<th>Building Control &amp; Planning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crown Estates</td>
</tr>
<tr>
<td>Clyde Harbour Board</td>
</tr>
<tr>
<td>National Hydrographic Society</td>
</tr>
<tr>
<td>Fisheries Protection</td>
</tr>
<tr>
<td>SEPA</td>
</tr>
<tr>
<td>Electricity Board</td>
</tr>
<tr>
<td>SCHRI</td>
</tr>
</tbody>
</table>
Comfort / Cost Comparison

- **Air Sourced 450% (now) freeze unfreeze process.**
- **Land Sourced 500% Can freeze and gaps in conductivity.**
- **Water Sourced 550% Steady source temperature and excellent conductivity.**
- **4 x more efficient than gas**
Reflections

Air to Air: An easier option
No Permissions

Community Scale Coils

Refrigerant Developments