

ESTA : Compliance is NOT optional

Producing Display Energy Certificates

Paul Homer - Optima Energy Management



# Display Energy Certificates

Who?

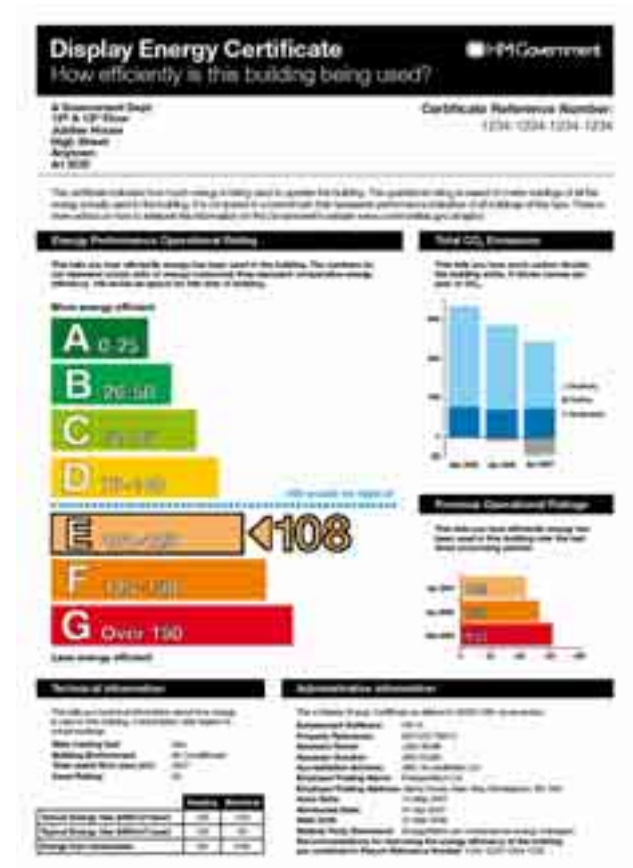
When?

How?

- Landmark
- CIP
- OR Software

3<sup>rd</sup> Party Software

Preparation



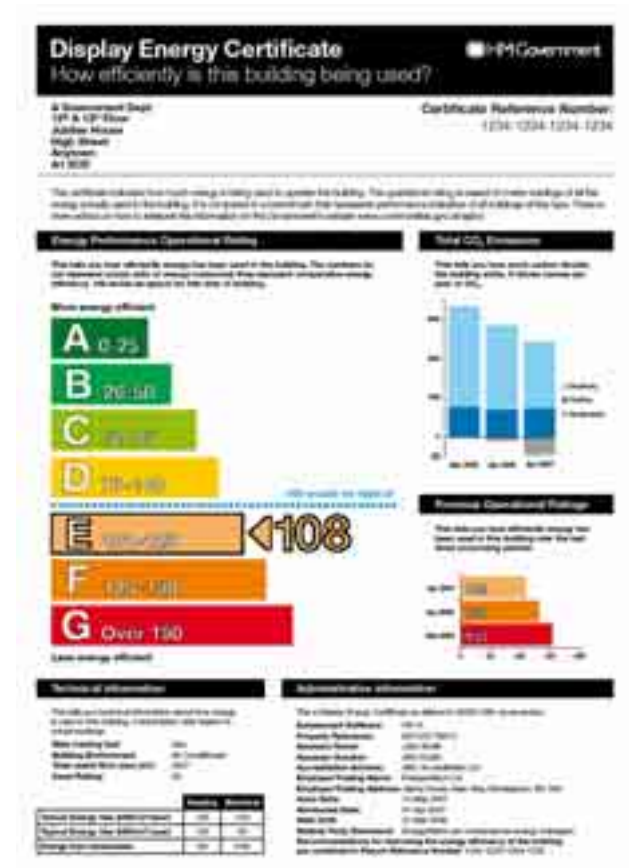
# Display Energy Certificates

## Who?

A DEC and advisory report are required for buildings with a total useful floor area over 1,000m<sup>2</sup> occupied by public authorities and by institutions providing public services to a large number of persons AND therefore frequently visited by those persons

## When?

1<sup>st</sup> October 2008



# Display Energy Certificates

## Landmark Information Group



<https://www.ndepcregister.com>

# Display Energy Certificates

CIP – Central Information Point

Where UPRN is issued

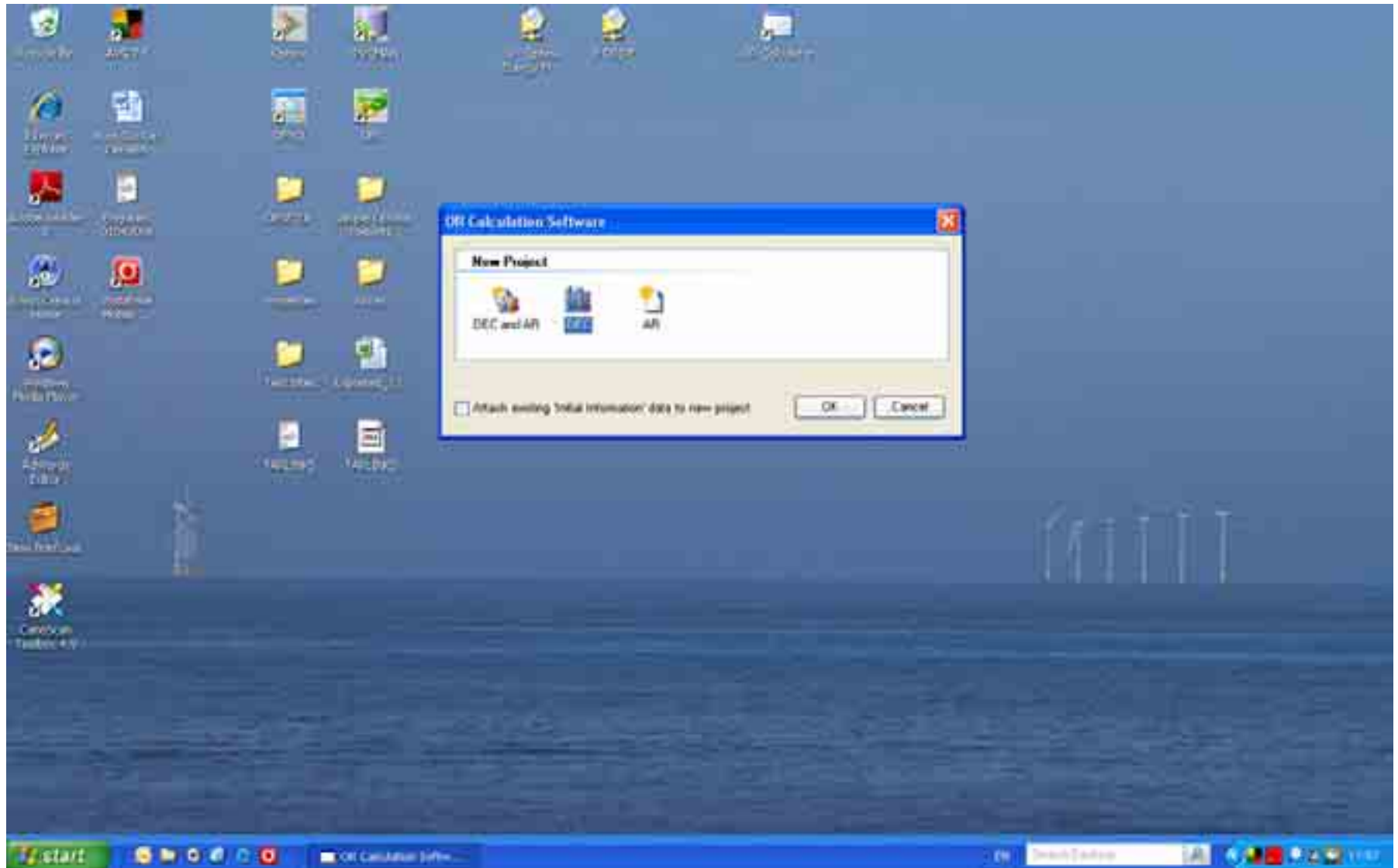
Where DEC's and ARs lodged

Database of standard benchmarks

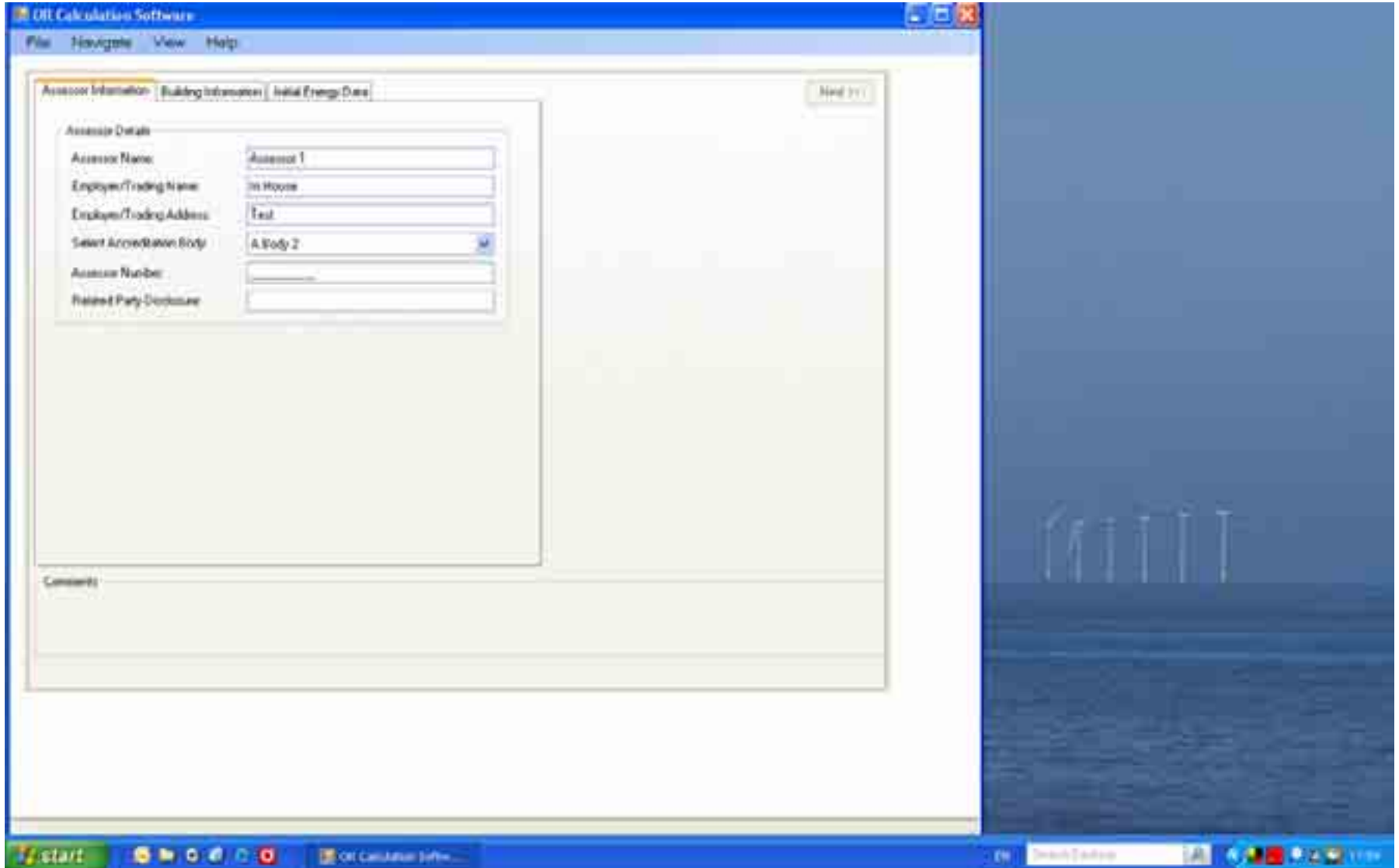
Database of post code based regional degree days

<https://www.ndepcregister.com>

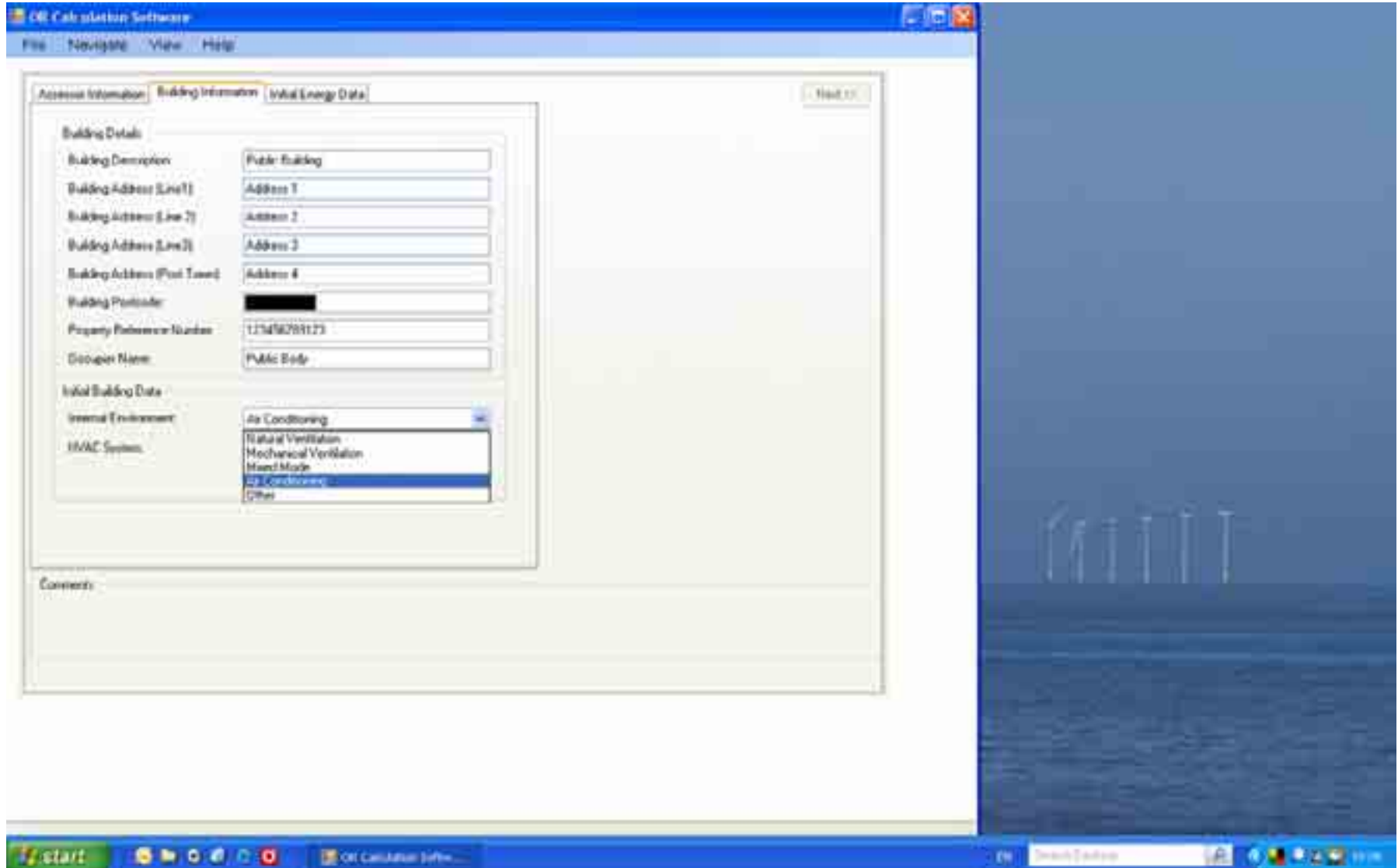
# Display Energy Certificates Operation Rating Software



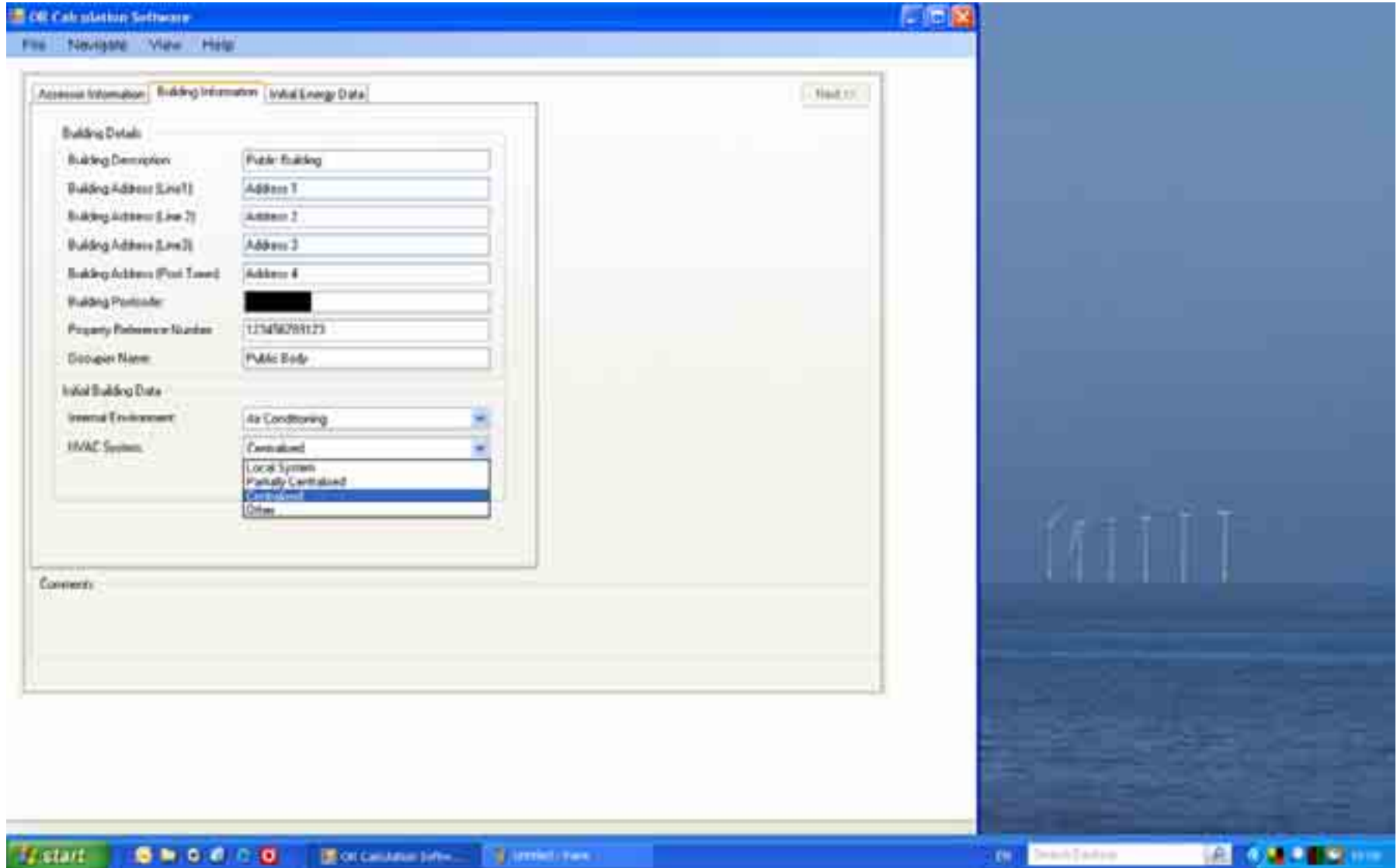
# Display Energy Certificates Operation Rating Software



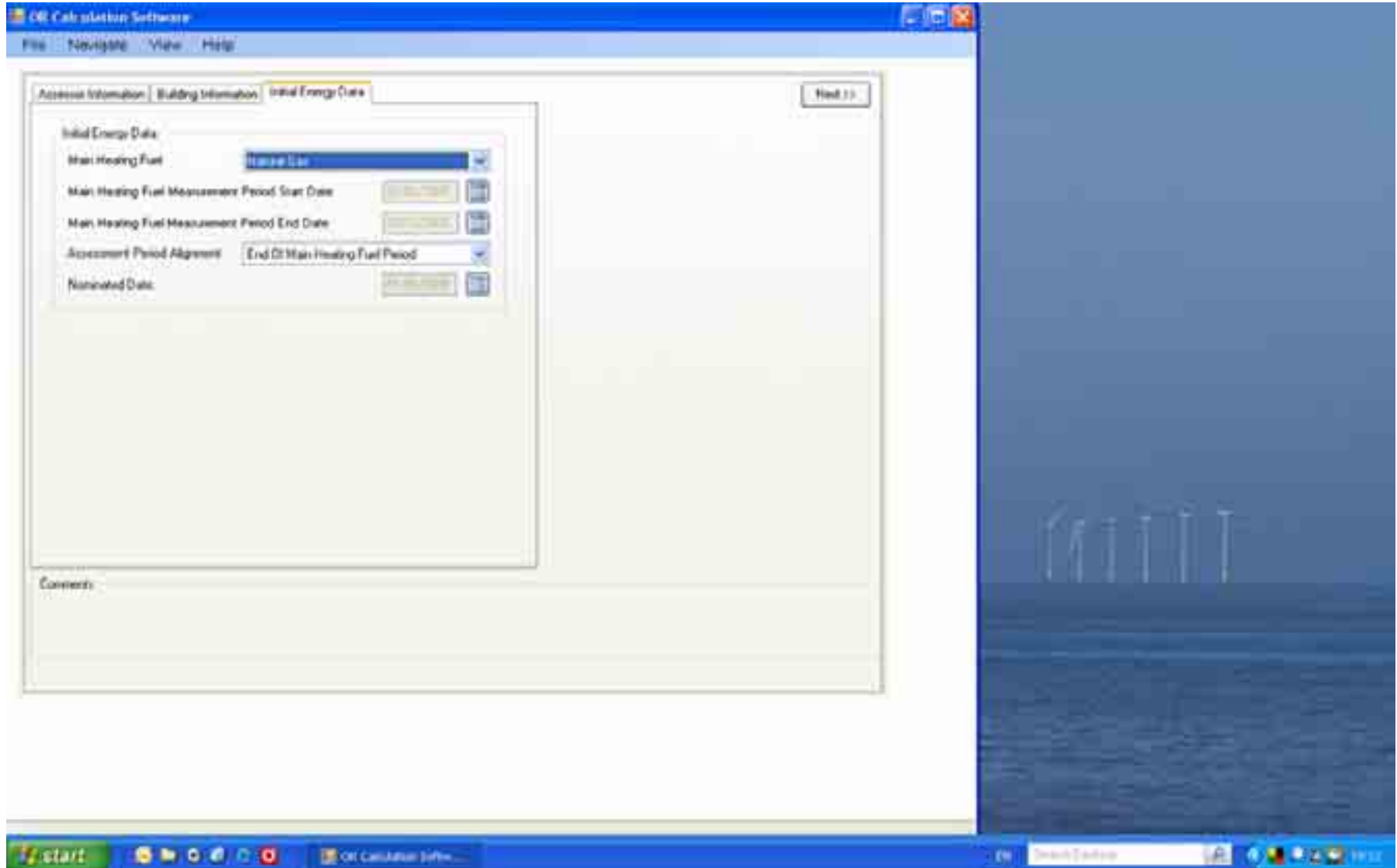
# Display Energy Certificates Operation Rating Software



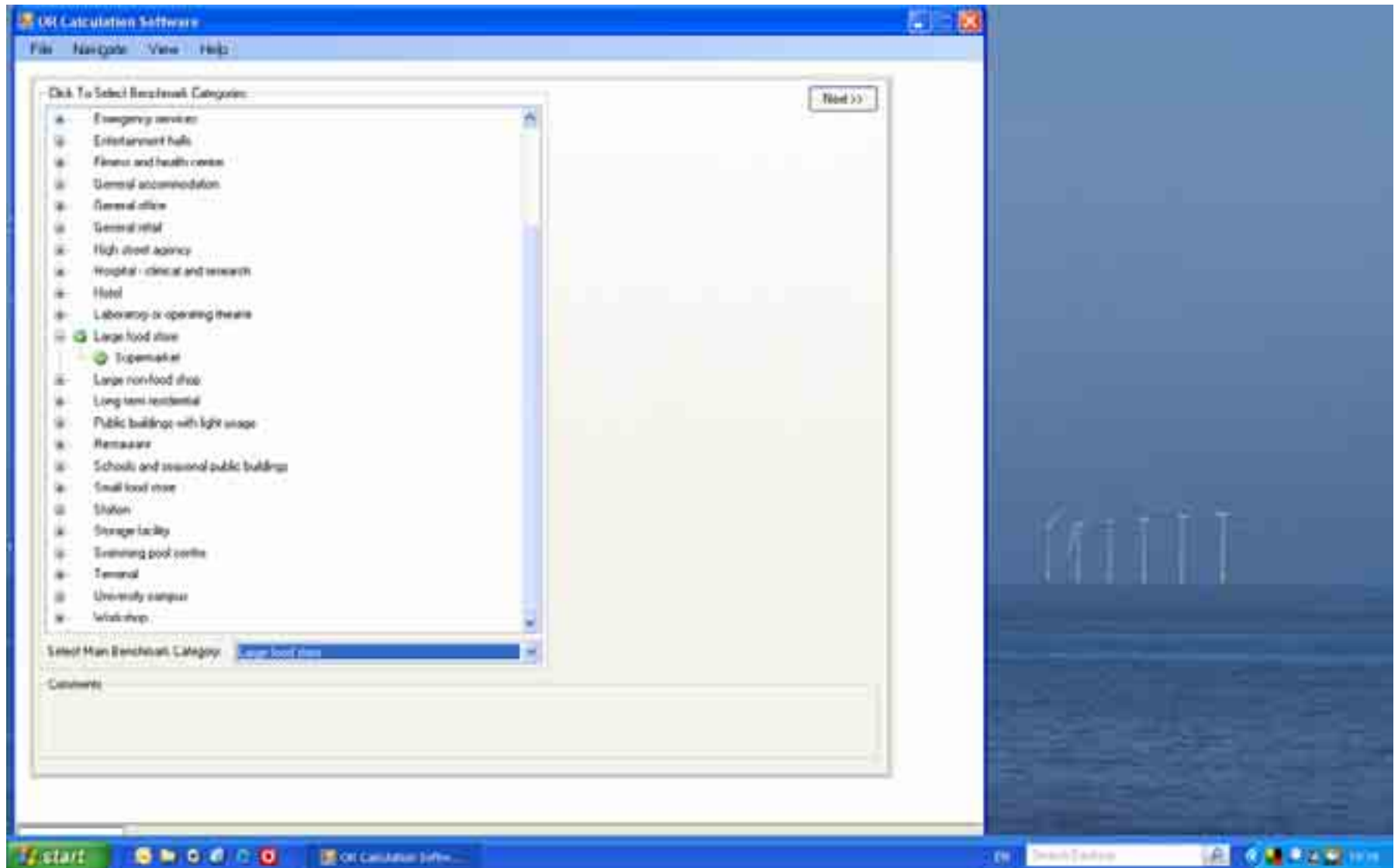
# Display Energy Certificates Operation Rating Software



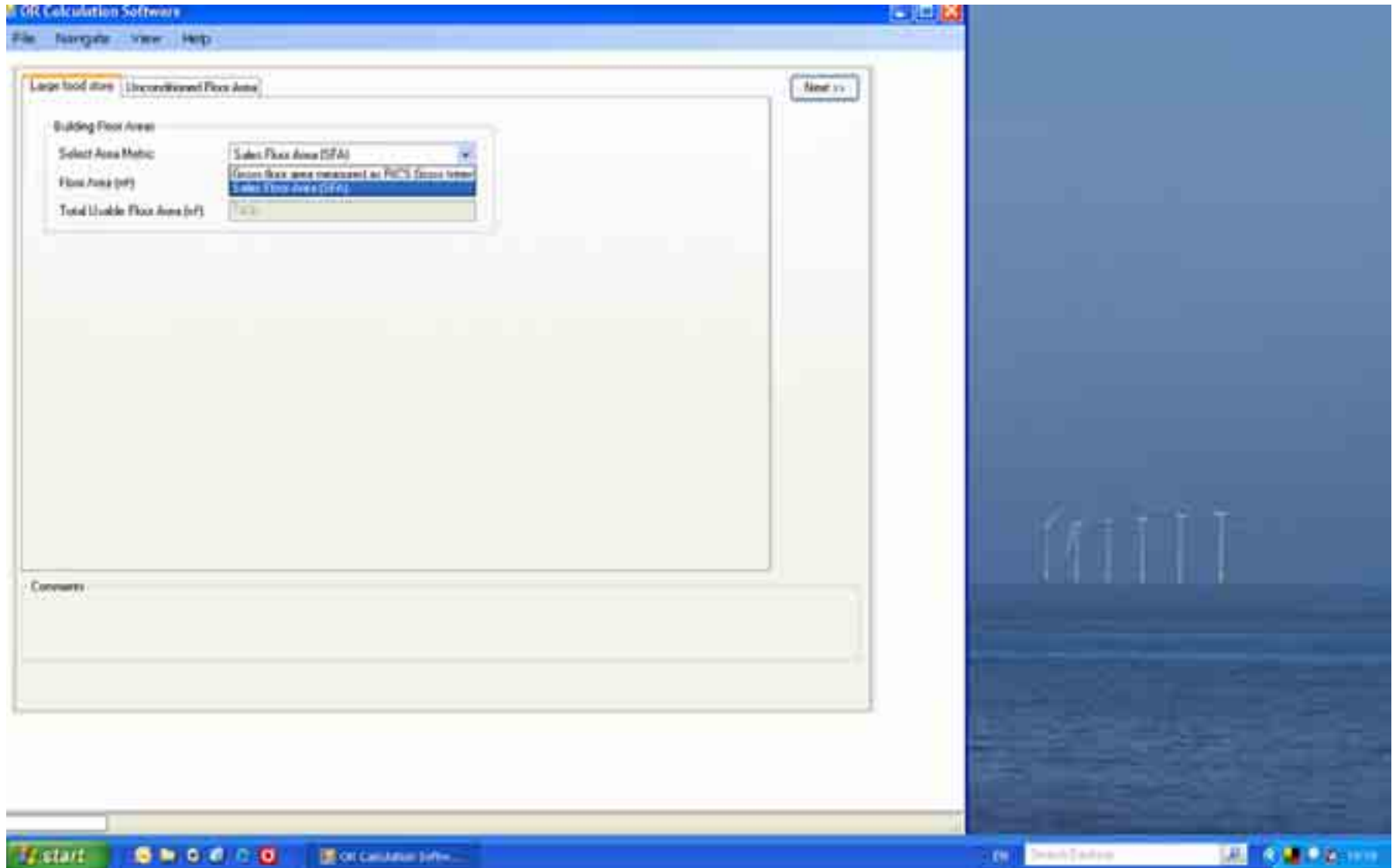
# Display Energy Certificates Operation Rating Software



# Display Energy Certificates Operation Rating Software



# Display Energy Certificates Operation Rating Software



# Display Energy Certificates Operation Rating Software

The screenshot displays the 'OR Calculation Software' interface. The main window is titled 'Large food store' and contains a 'Benchmark Information' section. This section includes a table with the following rows:

Parameter	Value
Typical Electricity Energy Density	100 kWh/m²/yr
Typical Non-Electricity Energy Density	100 kWh/m²/yr
Typical Electricity CO2 Density	100 kg CO2/m²/yr
Typical Non-Electricity CO2 Density	100 kg CO2/m²/yr
Typical Total CO2 Density	100 kg CO2/m²/yr
Percent Of Electricity Benchmark, Pro-Rated To Index	100%
Percent Of Non-Electricity Benchmark, Pro-Rated To Index	100%
Energy Meter	100 kWh/m²/yr
Approved Secondary Metric	100 kWh/m²/yr
Representative Multiplier	100%

Below the benchmark information, there is a 'Degree Day Information' section with a table:

Parameter	Value
DD Corrected Electricity CO2 Density	100 kg CO2/m²/yr
DD Corrected Non-Electricity CO2 Density	100 kg CO2/m²/yr
DD Corrected Total CO2 Density	100 kg CO2/m²/yr

At the bottom of the window, there are fields for 'Degree Day Region' and 'Degree Day'.

**Comments:**  
Benchmarks given for specified building type.  
Degree Day adjustment based on geographical location derived from specified building postcode.



# Display Energy Certificates Operation Rating Software

The screenshot displays the 'OER Calculation Software' interface. The window title is 'OER Calculation Software'. The menu bar includes 'File', 'View', 'Navigation', and 'Help'. The main content area is titled 'Large food store' and contains a 'Next >>' button in the top right corner.

Under the heading 'Occupancy Definition', there are two input fields: 'Occupancy Level' with a dropdown menu set to 'Extended Occupancy', and 'Total Equivalent Hours / Year' with the value '4000'.

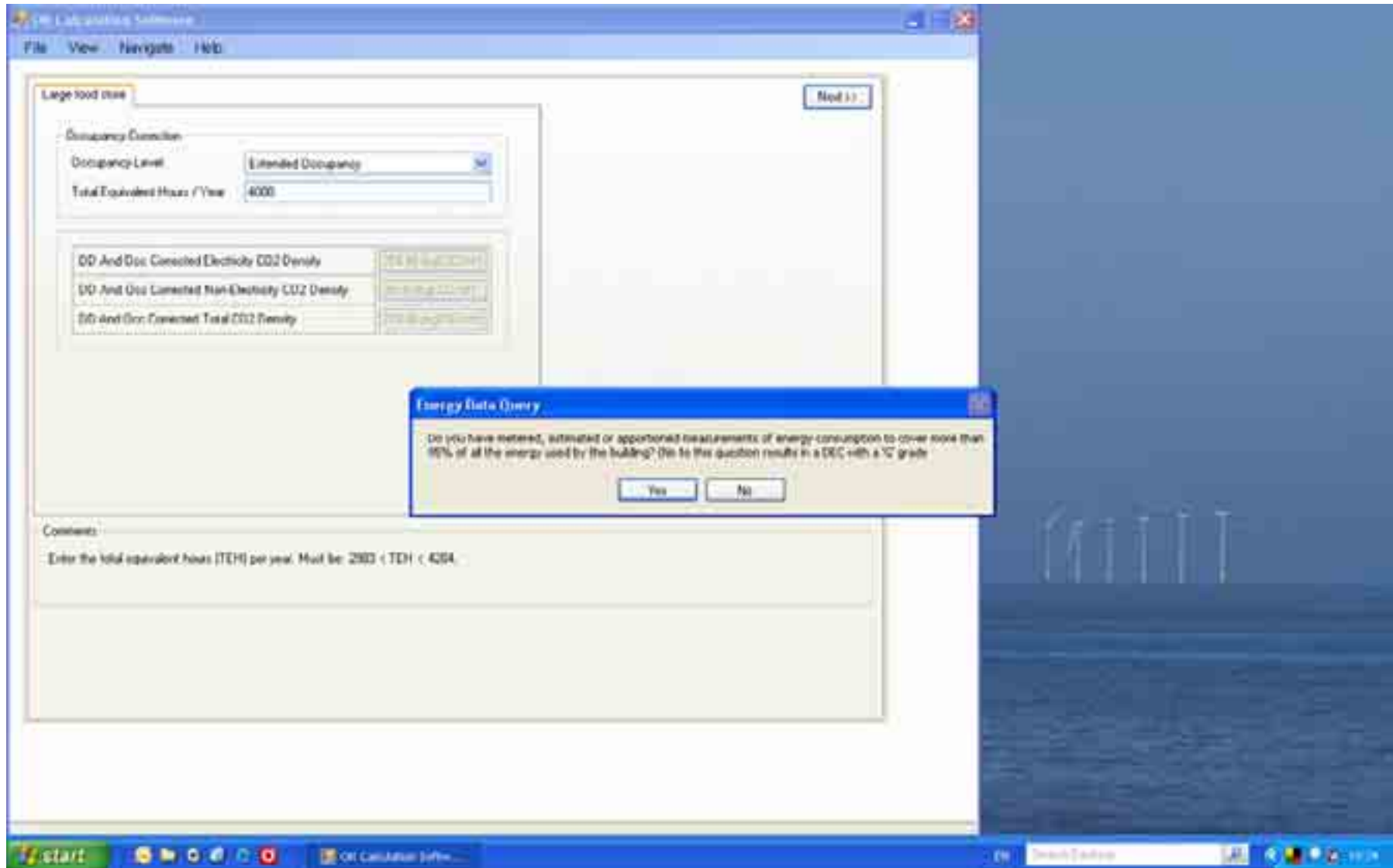
Below this, there is a table with three rows and two columns:

CO <sub>2</sub> And Occ Corrected Electricity CO <sub>2</sub> Density	TEH (kWh/m <sup>2</sup> /year)
CO <sub>2</sub> And Occ Corrected Non-Electricity CO <sub>2</sub> Density	TEH (kWh/m <sup>2</sup> /year)
CO <sub>2</sub> And Occ Corrected Total CO <sub>2</sub> Density	TEH (kWh/m <sup>2</sup> /year)

At the bottom of the main area, there is a 'Comments' section with the text: 'Enter the total equivalent hours (TEH) per year. Must be: 200 < TEH < 4000.'

The Windows taskbar at the bottom shows the 'start' button, several application icons, and the 'OER Calculation Software' window icon. The system tray on the right shows the date and time as '19/12'.

# Display Energy Certificates Operation Rating Software



# Display Energy Certificates Operation Rating Software

The screenshot displays the 'OIR Calculation Software' interface. The main window is titled 'Energy Consumption Data' and contains a table with the following columns: Fuel Type, Consumption (kWh), Start Date, End Date, and Estimate?.

Fuel Type	Consumption (kWh)	Start Date	End Date	Estimate?
<input checked="" type="checkbox"/> Electricity	3661000	01/01/2007	31/12/2007	NI
<input checked="" type="checkbox"/> Natural Gas	2138200			NI
<input type="checkbox"/> LPG				
<input type="checkbox"/> Biogas				
<input type="checkbox"/> Oil				
<input type="checkbox"/> Coal				
<input type="checkbox"/> Anthracite				
<input type="checkbox"/> Solid-fuel Fuel				
<input type="checkbox"/> Biomass				
<input type="checkbox"/> Other				
<input type="checkbox"/> District Heating				
<input type="checkbox"/> District Cooling				

Below the table is a field for 'Energy Consumption Accuracy'.

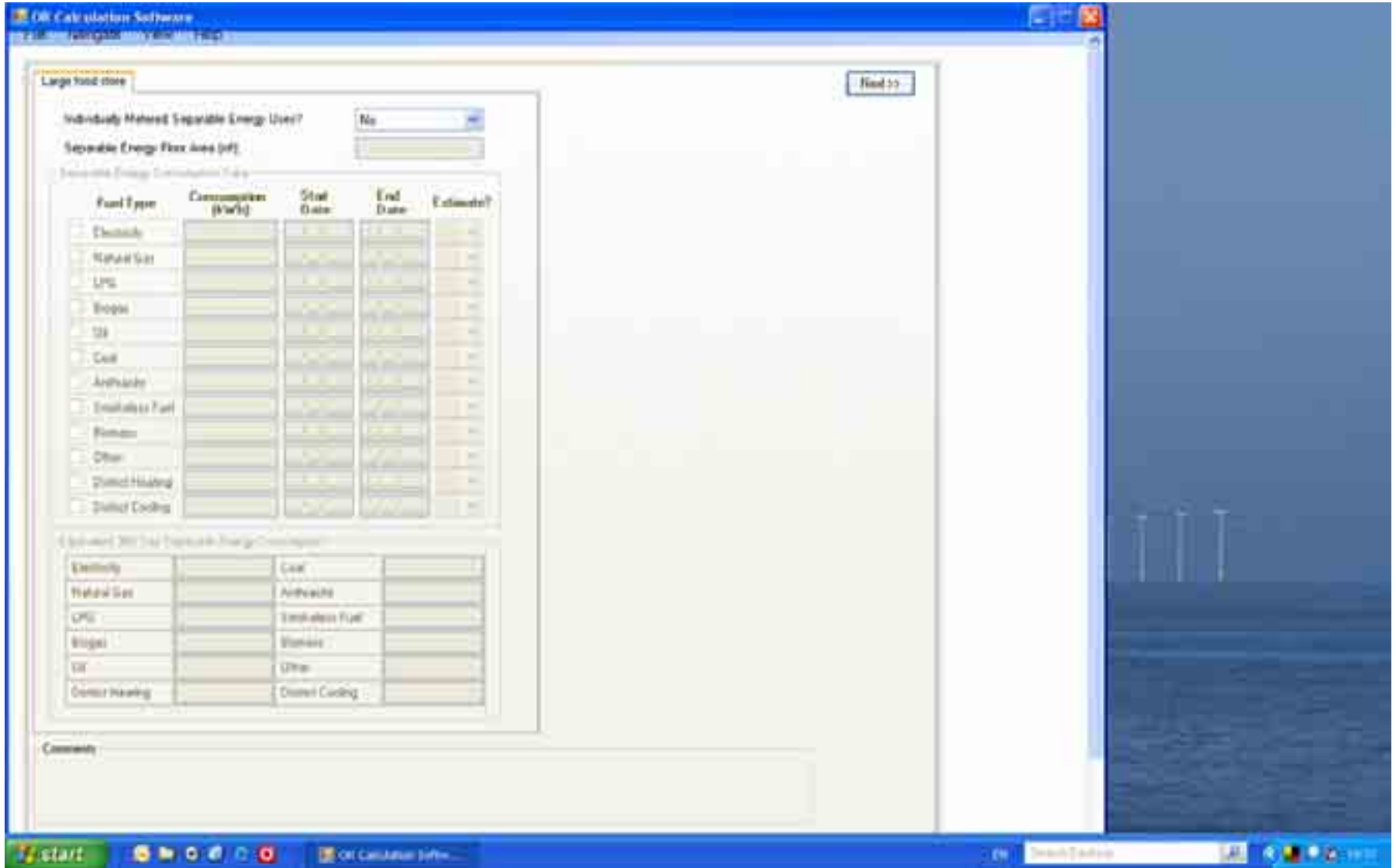
The 'Equivalent 365 Day Energy Consumption' section contains a table with two columns:

Electricity	3661000	Coal	0.000
Natural Gas	2138200	Anthracite	0.000
LPG	0.000	Solid-fuel Fuel	0.000
Biogas	0.000	Biomass	0.000
Oil	0.000	Other	0.000
District Heating	0.000	District Cooling	0.000

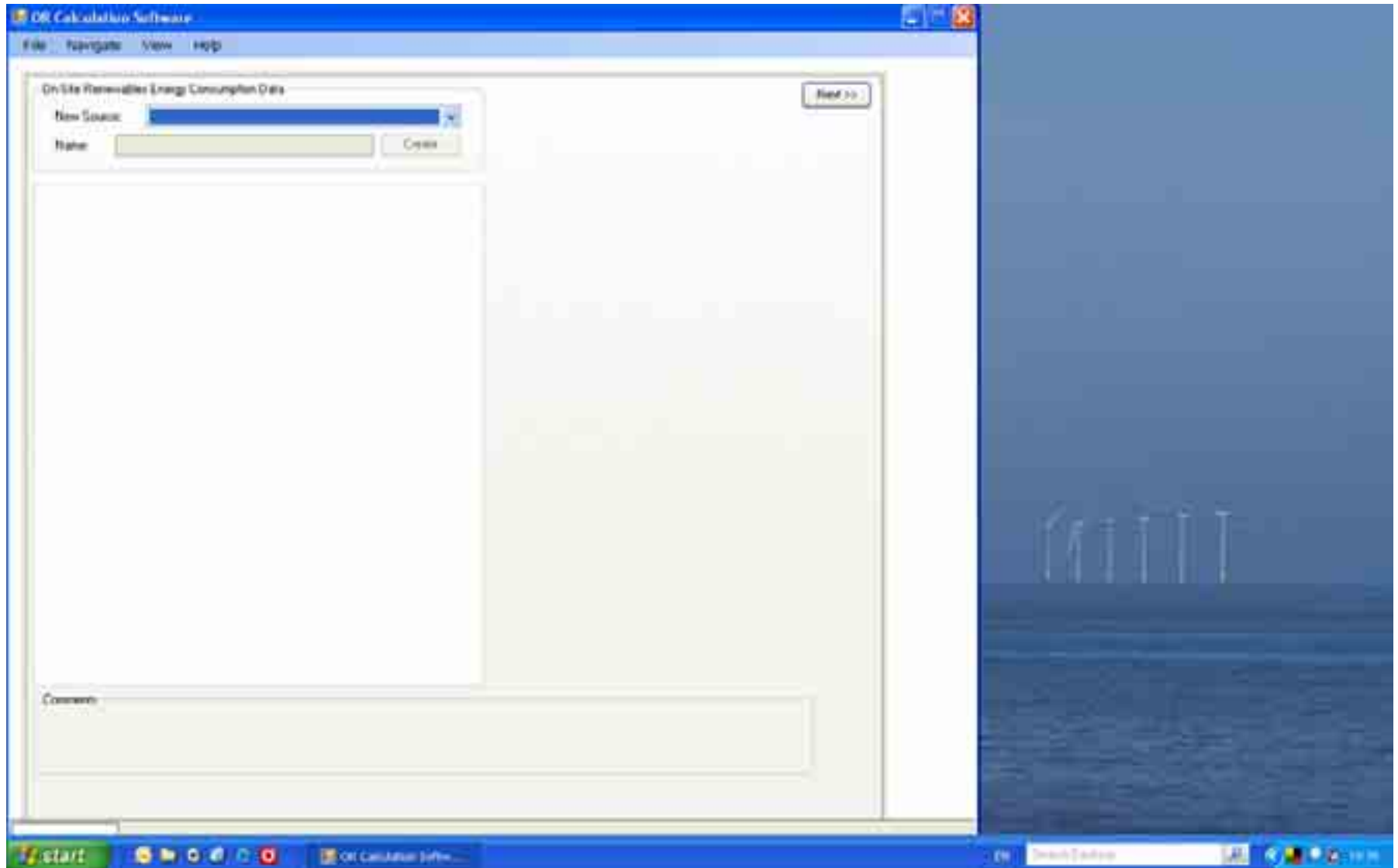
At the bottom of the window is a 'Comments' text area.

The background of the desktop shows a blue sky and a row of wind turbines on the horizon.

# Display Energy Certificates Operation Rating Software



# Display Energy Certificates Operation Rating Software



# Display Energy Certificates Operation Rating Software

The screenshot displays the 'OE Calculation Software' interface. The window title is 'OE Calculation Software'. The menu bar includes 'File', 'Settings', 'Help', and 'View'. The main interface is divided into several sections:

- CO2 Emission Factors:** This section contains three input fields: 'District Heating', 'District Cooling', and 'Other'. A 'Start' button is located to the right of this section.
- CO2 Emissions (T002/year):** This section contains a table with two columns for inputting emission data.
- Comments:** A large text area at the bottom of the main window for entering additional information.

Electricity	Coal
Natural Gas	Artificial
LPG	Smokeless Fuel
Biogas	Biogas
Oil	Other
District Heating	District Cooling

The desktop background features a blue sky with a row of wind turbines on the horizon. The Windows taskbar at the bottom shows the 'start' button, several application icons, and the system tray with the date and time '19:14'.

# Display Energy Certificates

## Operation Rating Software

The screenshot displays the 'OR Calculation Software' interface. The main window is titled 'Display Energy Certificate' and contains the following elements:

- Header:** 'Display Energy Certificate' and 'How efficiently is this building being used?'.
- Buttons:** 'Save DEC', 'Save Full Technical Table', 'Save API', and 'Export Valued Output'.
- Energy Performance Operational Rating:** A vertical scale from A to G. The current rating is E (120 kWh/m²), indicated by a blue arrow pointing to the 'E' band.
- Energy Performance Operational Rating Legend:**
  - A: 0-25
  - B: 26-50
  - C: 51-75
  - D: 76-100
  - E: 101-125
  - F: 126-150
  - G: Over 150
- Previous Operational Rating:** A section for historical data.
- Summary Information:** Two columns of data including building details and energy consumption metrics.
- Comments:** A text area at the bottom for additional notes.

The background of the software window features a large, semi-transparent 'DRAFT' watermark. To the right of the software window, a separate image shows a row of wind turbines on a coastal plain under a clear sky.

# Display Energy Certificates

## 3<sup>rd</sup> Party Software Benefits

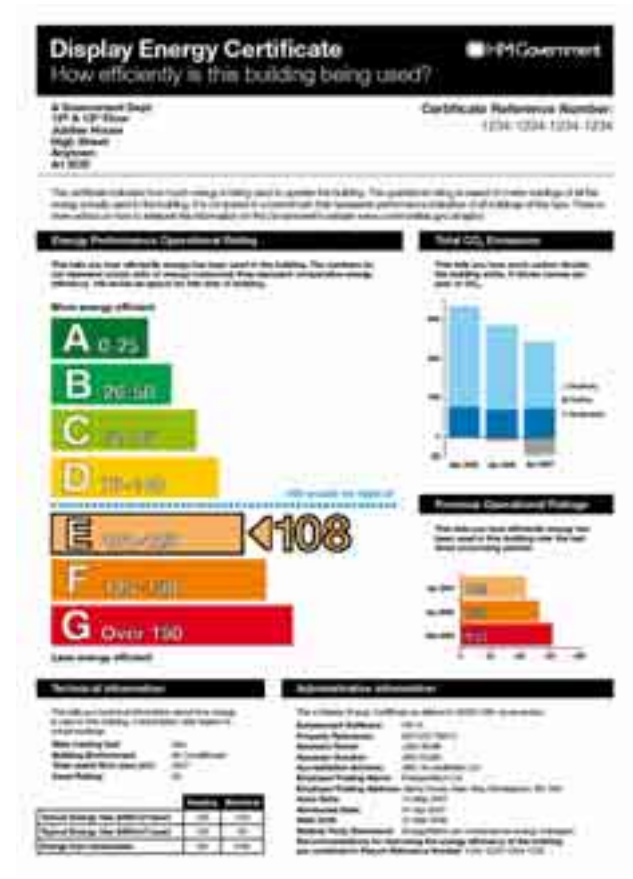
Base data already available

Ability to produce in bulk

Issues?

Degree day discrepancies?

Software still needs accredited assessor



# Display Energy Certificates

## Preparation

Identify which sites are affected

Collate 12 months energy data

Get supplier estimates if required

Ensure sub metering covers any exceptional energy use

Ensure any on site renewables are metered

Obtain or calculate building areas

