

Capabilities on project:
Building Engineering - Sustainability

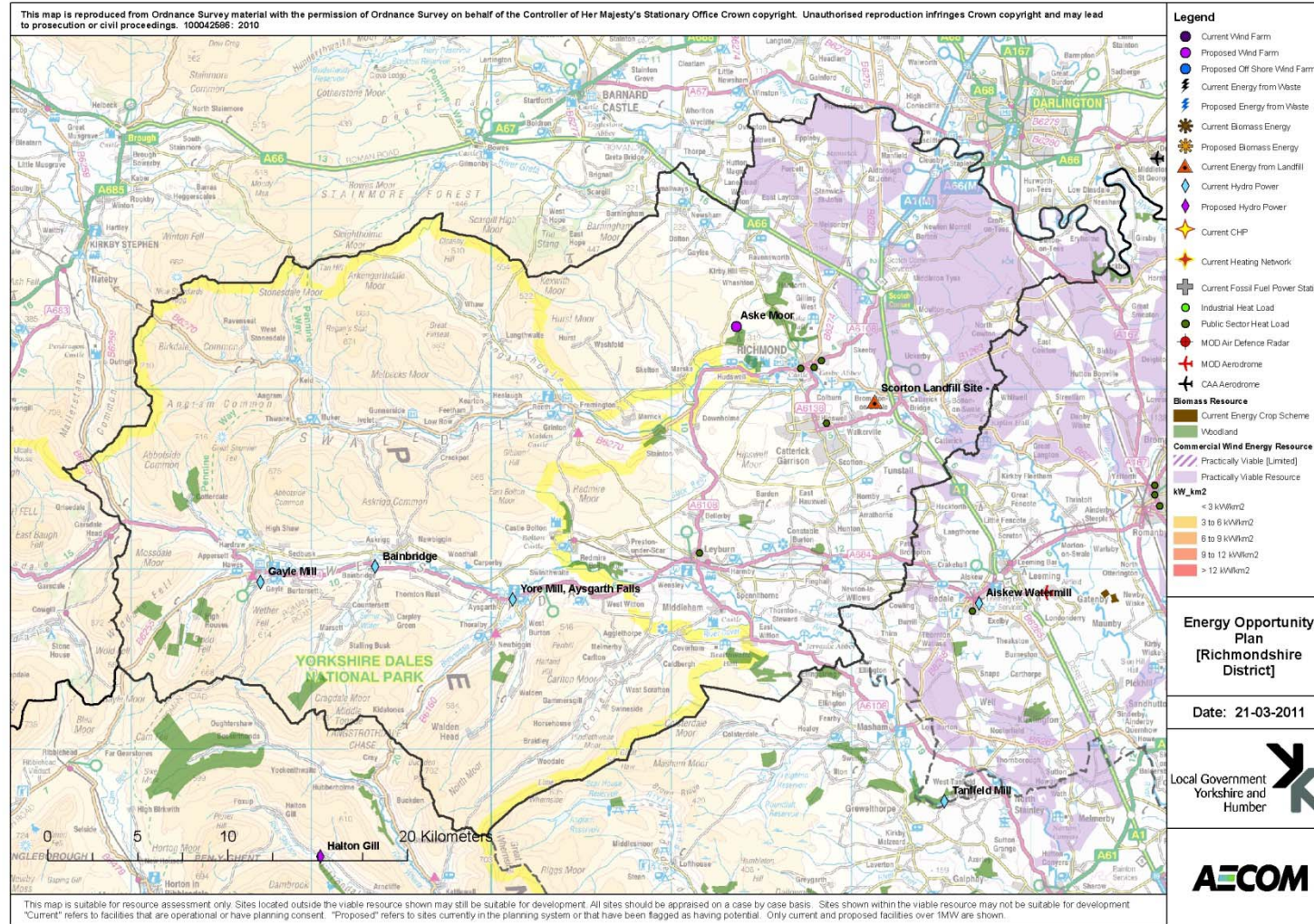


Figure 88 Energy opportunities plan for Richmondshire. "Current" refers to facilities that are operational or have planning consent. "Proposed" refers to facilities currently in the planning system or sites that have been flagged as having potential. Only current and proposed facilities over 1MW are shown. The areas with purple hatched shading described as "Practically viable [Limited]" represent areas where commercial scale wind energy development should be viable but the number of turbines may be restricted due to environmental constraints. Please refer to section 5.15 and appendix A for more details.

Capabilities on project:
Building Engineering - Sustainability

B.15 Rotherham

Population: 250,000



The borough of Rotherham is located in South Yorkshire and was traditionally a major industrial centre based on coal and steel. Most of the traditional industries have now vanished, although there is still a steelworks at Aldwarke and a coal mine at Maltby. Rotherham town centre has sufficient heat density to support heat networks, and there are several small scale networks covering estates throughout the borough.

Beyond the town centre and away from the Don Valley, Rotherham is largely (about 52%) rural. The borough has significant potential for commercial scale wind and also some potential for hydro; Jordan Dam has been identified as a potential site.

Capabilities on project:
Building Engineering - Sustainability

Rotherham	Current capacity (MW)	Current capacity (GWh)	Potential resource - heat (MW)	Potential resource - electricity (MW)	Potential resource (GWh)	Potential resource (No of existing homes equivalent energy demand)	Potential resource (Proportion of regional resource)
Commercial wind	26	69	0	91	239	0	0%
Small scale wind	0	0	0	1	1	0	5%
Hydro	0	0	0	1	3	0	0%
Solar PV	1	1	0	12	9	0	0%
Solar thermal	0	0	18	0	11	1220	5%
Air source heat pumps	0	0	10	0	15	643	4%
Ground source heat pumps	0	0	6	0	11	390	4%
Biomass energy crops	0	0	7	4	59	476	1%
Biomass woodfuel	1	2	14	0	36	908	4%
Biomass agricultural arisings (straw)	0	0	5	2	38	320	2%
Biomass waste wood	0	0	2	1	14	116	3%
Energy from waste wet	0	0	1	1	11	84	1%
Energy from waste poultry litter	0	0	0	0	0	0	0%
Energy from waste MSW	0	0	2	1	20	166	3%
Energy from waste C&I	0	0	4	2	35	297	3%
Energy from waste landfill gas	1	6	0	0	0	0	0%
Energy from waste sewage gas	0	2	0	0	6	0	0%
Total	29	79	86	117	582	5,757	

Table 66 Current capacity and renewable energy resource in Rotherham. Current^o refers to facilities that are operational or have planning consent

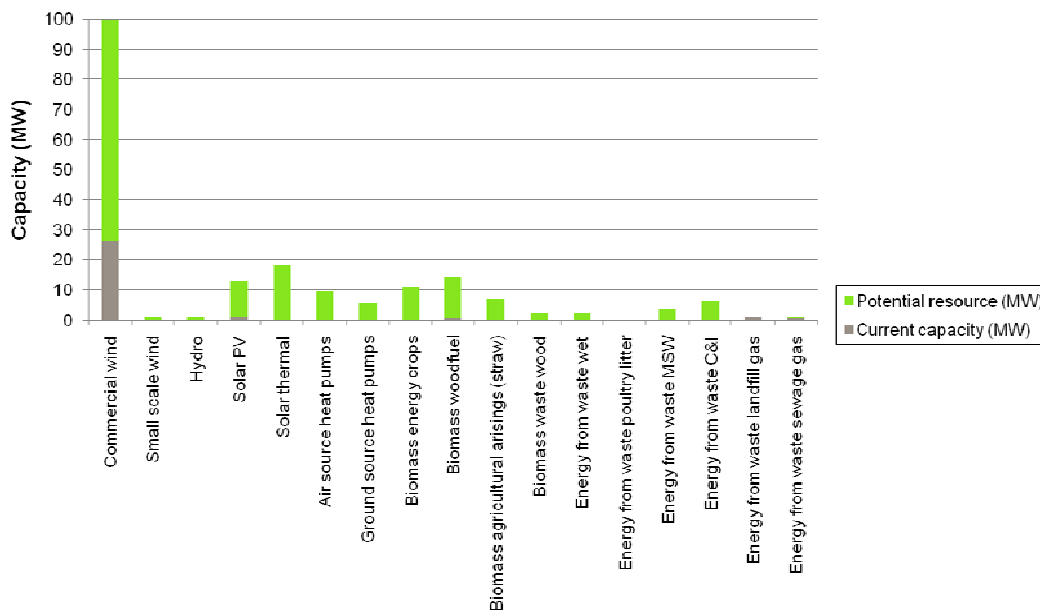


Figure 89 Current capacity and renewable energy resource in Rotherham. Current^o refers to facilities that are operational or have planning consent

Capabilities on project:
Building Engineering - Sustainability

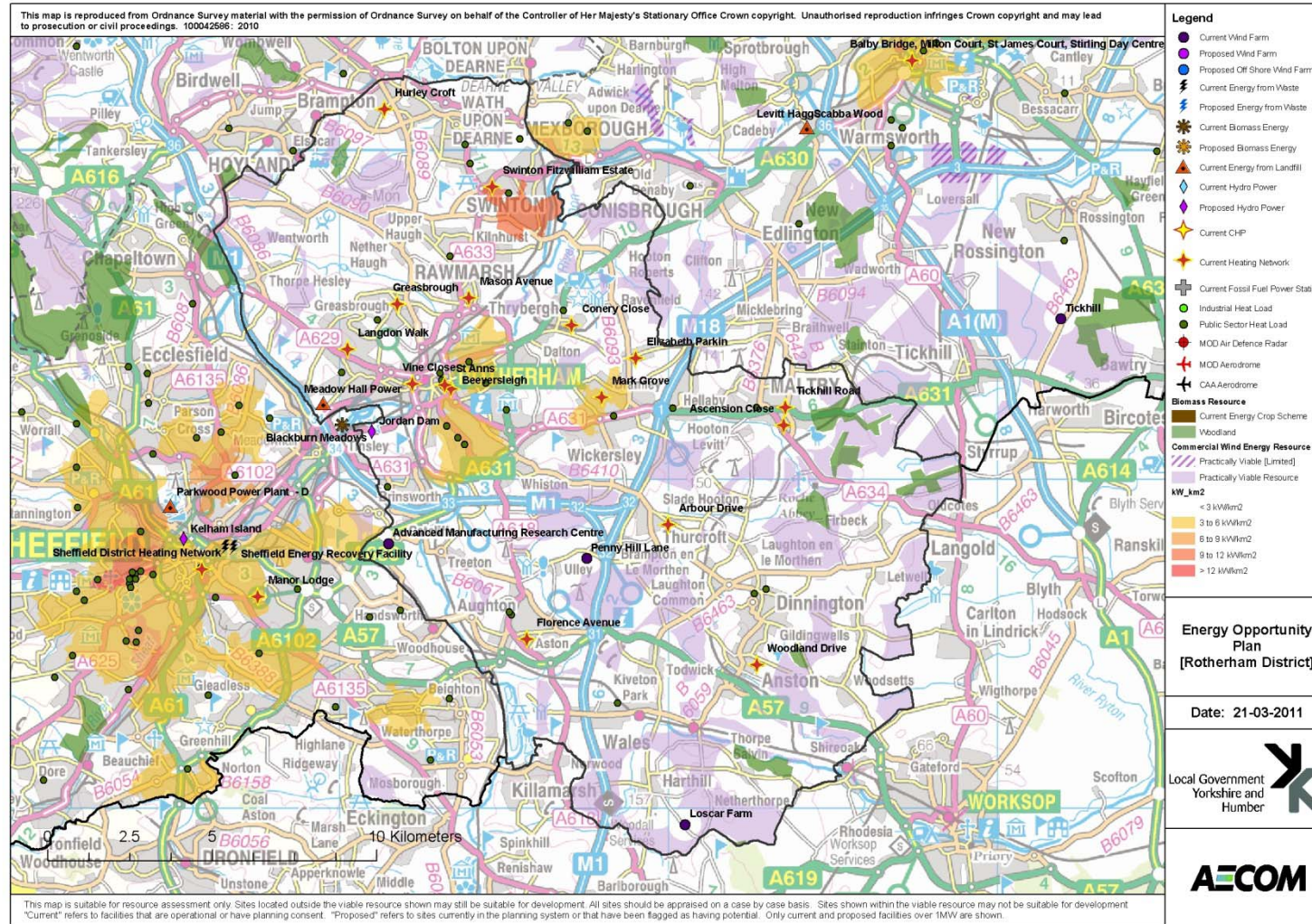


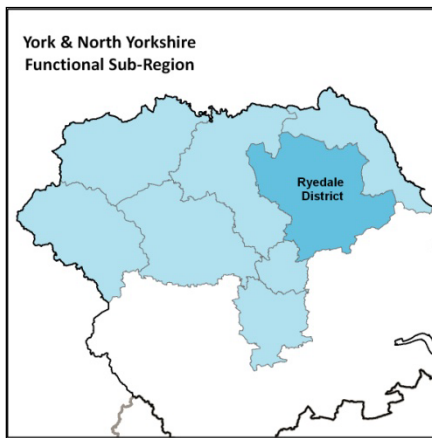
Figure 90 Energy opportunities plan for Rotherham. "Current" refers to facilities that are operational or have planning consent. "Proposed" refers to facilities currently in the planning system or sites that have been flagged as having potential. Only current and proposed facilities over 1MW are shown. The areas with purple hatched shading described as "Practically viable [Limited]" represent areas where commercial scale wind energy development should be viable but the number of turbines may be restricted due to environmental constraints. Please refer to section 5.15 and appendix A for more details.

Capabilities on project:
Building Engineering - Sustainability

B.16 Ryedale

Population: 52,900

Land area (km²): 1,507



Ryedale is a predominantly rural area which includes part of the North York Moors National Park. Almost half of the population reside within the main market towns of Malton, Norton, Helmsley, Kirkbymoorside and Pickering. The remainder reside in a range of rural settlements dispersed across the district.

There is some potential in Ryedale for commercial scale wind, in the south west of the district. Heselton Wind Farm is in the planning process towards the east of the district, showing that sites shown outside the resource identified in the study may still be viable for development.

This study has not identified any new hydro potential, although there are existing schemes within the national park at Lowna Mill and Bonfield Ghyll, as well as to the south at Howsham Mill.

The Energy Opportunities Plan shows that Ryedale has significant potential for biomass. There are a few areas of biomass energy crop planting as well as one biomass plant operating at South View Farm, and one proposed in Victory Mill.

Capabilities on project:
Building Engineering - Sustainability

Ryedale	Current capacity (MW)	Current capacity (GWh)	Potential resource - heat (MW)	Potential resource - electricity (MW)	Potential resource (GWh)	Potential resource (No of existing homes equivalent energy demand)	Potential resource (Proportion of regional resource)
Commercial wind	0	0	0	10	26	0	0%
Small scale wind	0	0	0	1	1	0	3%
Hydro	0	0	0	0	1	0	0%
Solar PV	0	0	0	2	1	0	0%
Solar thermal	0	0	3	0	2	204	1%
Air source heat pumps	0	0	6	0	9	385	2%
Ground source heat pumps	0	0	5	0	9	329	3%
Biomass energy crops	0	0	47	26	389	3148	9%
Biomass woodfuel	1	2	6	0	17	430	2%
Biomass agricultural arisings (straw)	8	56	13	7	105	885	5%
Biomass waste wood	0	0	0	0	2	20	1%
Energy from waste wet	0	0	4	4	37	281	4%
Energy from waste poultry litter	0	0	0	3	14	0	0%
Energy from waste MSW	0	0	1	0	5	45	1%
Energy from waste C&I	0	0	1	1	9	77	1%
Energy from waste landfill gas	0	2	0	0	0	0	0%
Energy from waste sewage gas	0	0	0	0	1	0	0%
Total	9	61	141	53	863	9,377	

Table 67 Current capacity and renewable energy resource in Ryedale. Current^o refers to facilities that are operational or have planning consent

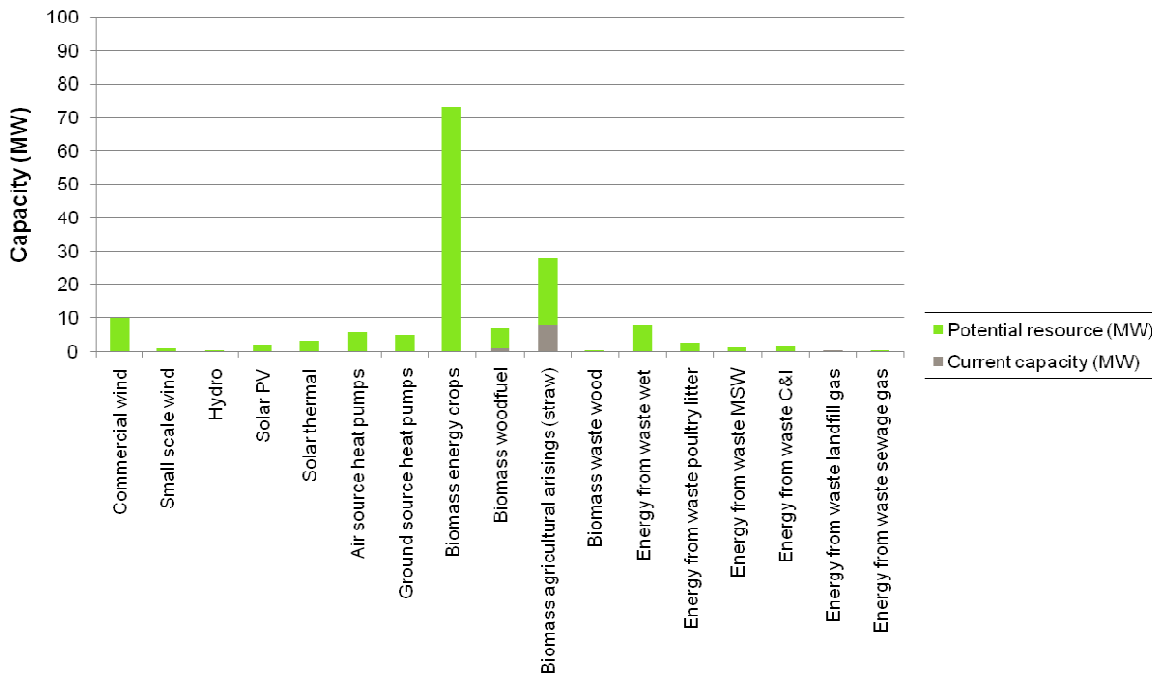


Figure 91 Current capacity and renewable energy resource in Ryedale. Current^o refers to facilities that are operational or have planning consent

Capabilities on project:
Building Engineering - Sustainability

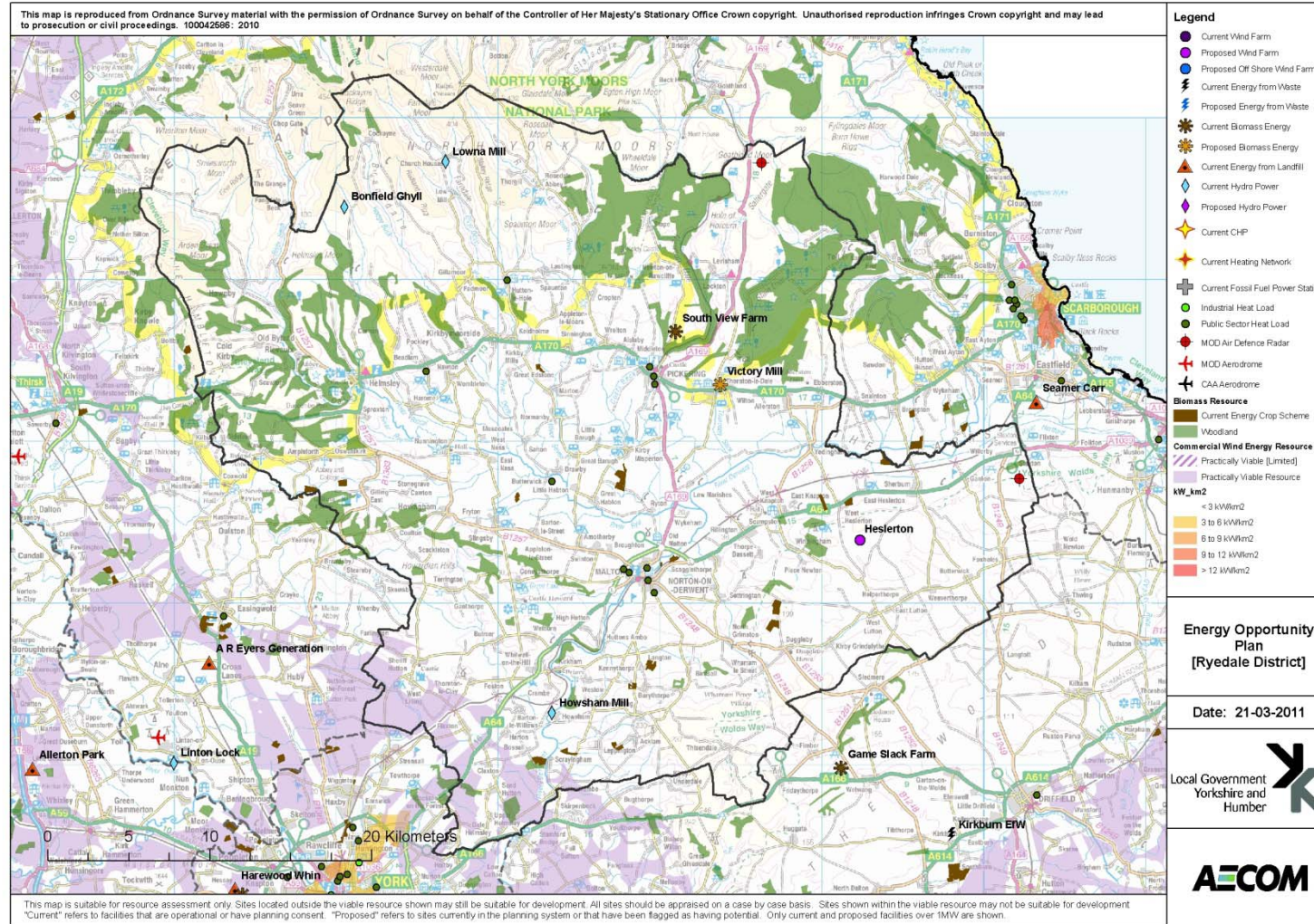


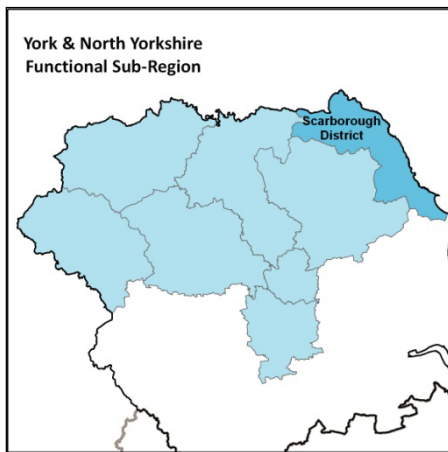
Figure 92 Energy opportunities plan for Ryedale. "Current" refers to facilities that are operational or have planning consent. "Proposed" refers to facilities currently in the planning system or sites that have been flagged as having potential. Only current and proposed facilities over 1MW are shown. The areas with purple hatched shading described as "Practically viable [Limited]" represent areas where commercial scale wind energy development should be viable but the number of turbines may be restricted due to environmental constraints. Please refer to section 5.15 and appendix A for more details.

Capabilities on project:
Building Engineering - Sustainability

B.17 Scarborough

Population: 108,500

Land area (km²): 817



The borough of Scarborough is located in the east of the region and covers a large stretch of the Yorkshire and Humber coast; its three principal towns, Scarborough, Whitby and Filey all sit on the coast. Scarborough borough is almost completely contained within the North York Moors National Park and therefore has almost no capacity for large scale renewable energy generation. There is potential for microgeneration technologies, for example, 20 kW turbine has received planning permission at Pilmoor Farm in Filey, and there is a biomass boiler at Fylingdales Village Hall which runs on wood pellets.

Also of note is a scheme is to upgrade Fylingdale's local electricity distribution grid into a 'smart grid' incorporating two-way communications, advanced sensors, and a remote SCADA system. This will also facilitate further deployment of community based renewable energy projects.⁷²

There is some biomass energy crop planting in the south east of the borough and a potential hydro site has been identified at Ruswarp Weir. There are also extensive areas of woodland, which could be managed to provide biomass to the borough and to the rest of the region.

The Energy Opportunities Plan shows that Scarborough Town has sufficient heat density to support district heating networks, particularly in the centre.

⁷² Agenda Item 17 Fylingdales Low Carbon Community Challenge Bid, Report to cabinet to be held December 2009

Capabilities on project:
Building Engineering - Sustainability

Scarborough	Current capacity (MW)	Current capacity (GWh)	Potential resource - heat (MW)	Potential resource - electricity (MW)	Potential resource (GWh)	Potential resource (No of existing homes equivalent energy demand)	Potential resource (Proportion of regional resource)
Commercial wind	0	0	0	10	26	0	0%
Small scale wind	0	0	0	1	1	0	3%
Hydro	0	0	0	0	1	0	0%
Solar PV	0	0	0	5	3	0	0%
Solar thermal	0	0	7	0	4	486	2%
Air source heat pumps	0	0	12	0	20	830	5%
Ground source heat pumps	0	0	4	0	8	281	3%
Biomass energy crops	0	0	20	11	167	1354	4%
Biomass woodfuel	0	0	10	0	28	699	3%
Biomass agricultural arisings (straw)	0	0	5	2	36	301	2%
Biomass waste wood	0	0	1	0	7	56	2%
Energy from waste wet	0	0	2	2	20	150	2%
Energy from waste poultry litter	0	0	0	1	7	0	0%
Energy from waste MSW	0	0	2	1	12	105	2%
Energy from waste C&I	0	0	2	1	15	128	1%
Energy from waste landfill gas	10	52	0	0	0	0	0%
Energy from waste sewage gas	0	0	0	0	3	0	0%
Total	10	53	93	34	475	6,183	

Table 68 Current capacity and renewable energy resource in Scarborough. Current^m refers to facilities that are operational or have planning consent

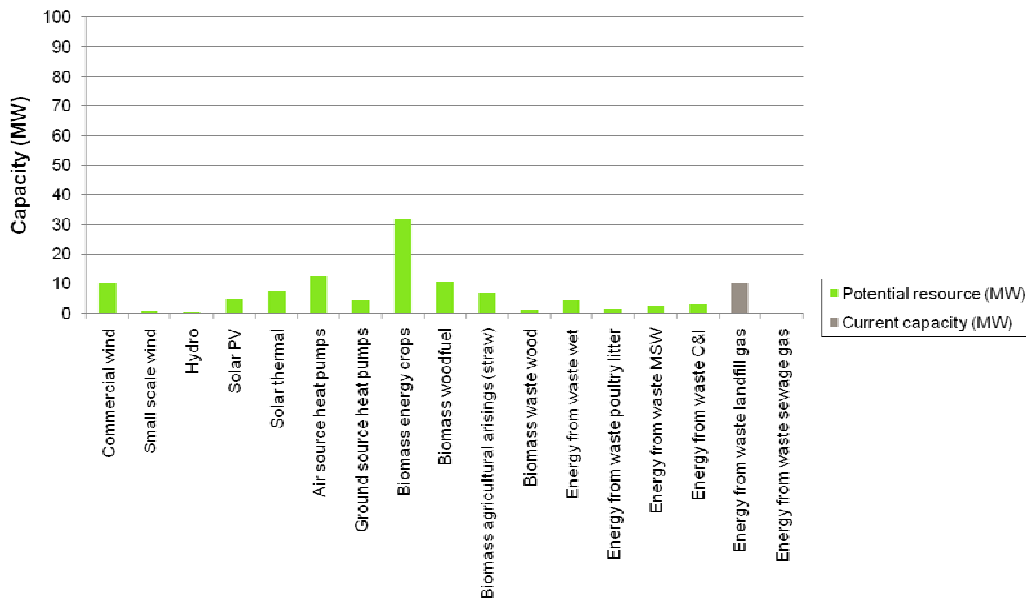


Figure 93 Current capacity and renewable energy resource in Scarborough. Current^m refers to facilities that are operational or have planning consent

Capabilities on project:
Building Engineering - Sustainability

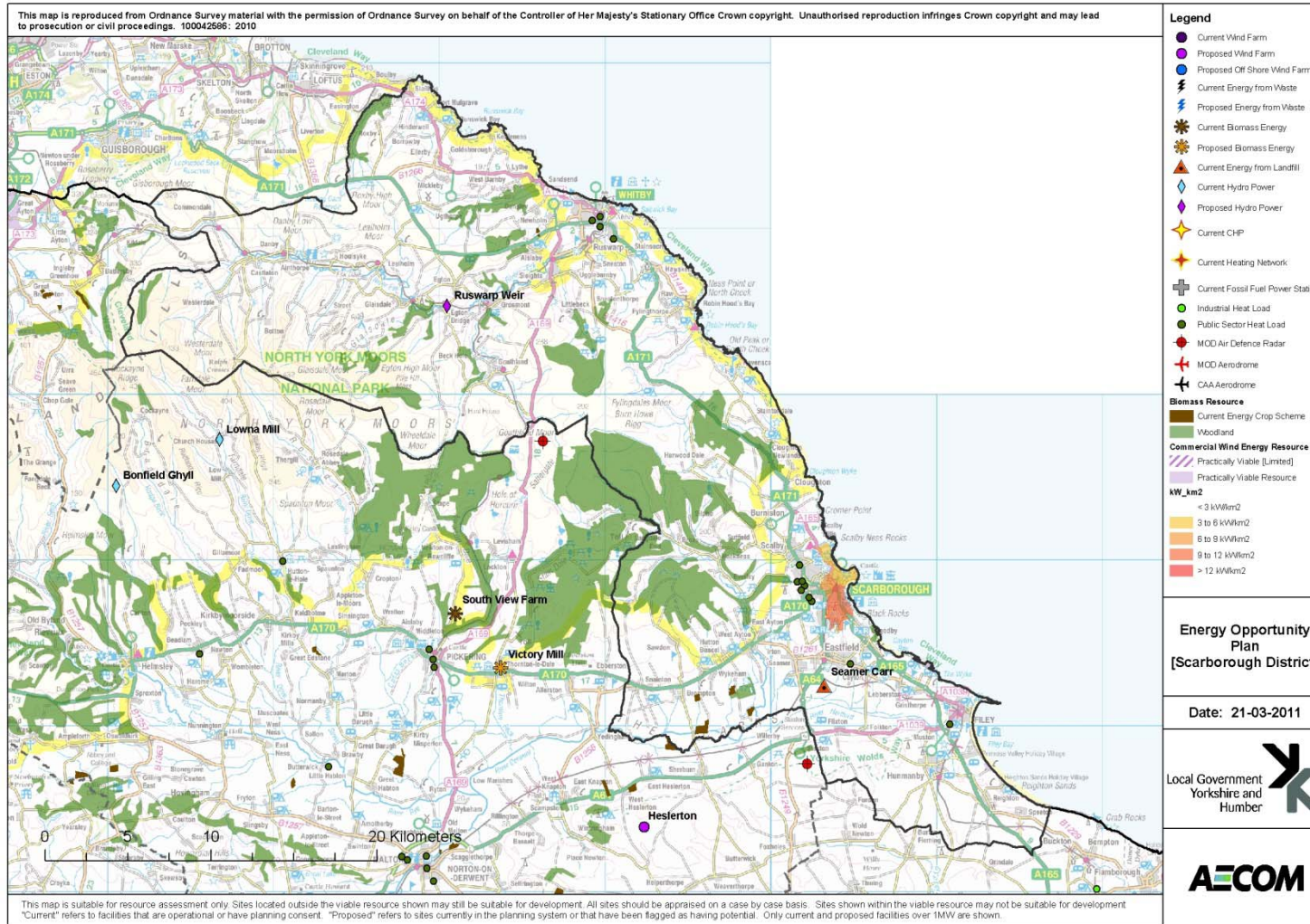


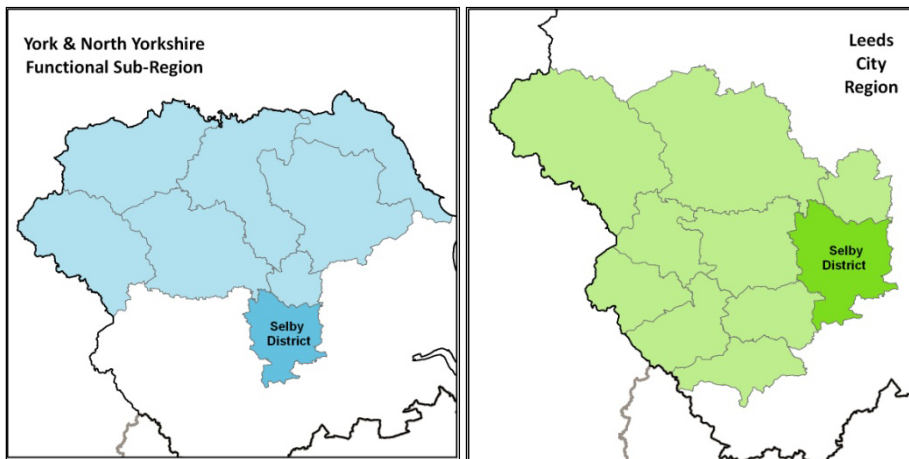
Figure 94 Energy opportunities plan for Scarborough. "Current" refers to facilities that are operational or have planning consent. "Proposed" refers to facilities currently in the planning system or sites that have been flagged as having potential. Only current and proposed facilities over 1MW are shown. The areas with purple hatched shading described as "Practically viable [Limited]" represent areas where commercial scale wind energy development should be viable but the number of turbines may be restricted due to environmental constraints. Please refer to section 5.15 and appendix A for more details.

Capabilities on project:
Building Engineering - Sustainability

B.18 Selby

Population: 82,000

Land area (km²): 599



Selby District is a relatively small, rural district and is the most southerly district in the York and North Yorkshire sub-region. It is also part of the Leeds City Region. Much of the district is relatively flat and low-lying, and is characterised by open, sparsely wooded arable landscapes including extensive areas of the highest quality agricultural land.

Historically Selby's economy has been dominated by agriculture, coal mining and the energy industries and there are two major coal fired power stations in the district, Drax and Eggborough.

The tradition of energy generation has continued into renewable energy generation: the district has two biomass plants in operation or with planning consent (the 4.7 MW John Smith's brewery in Tadcaster and the 52 MW Pollington Energy Park), and one large biomass plant awaiting Section 36 approval from central government (the 290 MW Drax Ouse plant).

Selby district also has one operational wind farm (the 12 MW Marr Wind Farm), one with planning consent (the 24 MW Rusholme Wind Farm) and three applications in planning (the 17.5 MW Bishopwood Wind Farm, the 15 MW Cleek Hall Wind Farm and the 32.3 MW Wood Lane Wind Farm).

Finally, Selby has an 8 MW anaerobic digestion facility processing 165,000 tonnes per annum commercial food waste at the Selby Renewable Energy Park and a 6MW plant processing factory effluent at the Greencore Group food processing facility in Selby town. Quarry View Poultry Farm also has a smaller biomass plant.

Selby has good resource for further renewable energy generation. Selby town has the heat density required to support a district heating network. Biomass is another large opportunity within the district, with existing biomass energy crop schemes near Tawton, Kirkby Wharfe, Stillingfleet, Riccall, Kellington and Haddlesey).

Outside of Selby town, the majority of the land is rural and holds significant promise for commercial scale wind energy.

Capabilities on project:
Building Engineering - Sustainability

Selby	Current capacity (MW)	Current capacity (GWh)	Potential resource - heat (MW)	Potential resource - electricity (MW)	Potential resource (GWh)	Potential resource (No of existing homes equivalent energy demand)	Potential resource (Proportion of regional resource)
Commercial wind	36	95	0	271	712	0	0%
Small scale wind	0	0	0	1	1	0	5%
Hydro	0	0	0	1	3	0	0%
Solar PV	0	0	0	4	3	0	0%
Solar thermal	0	0	6	0	3	376	2%
Air source heat pumps	0	0	3	0	4	167	1%
Ground source heat pumps	0	0	7	0	13	461	4%
Biomass energy crops	0	0	10	5	81	657	2%
Biomass woodfuel	0	0	13	0	33	849	3%
Biomass agricultural arisings (straw)	5	33	8	4	65	547	3%
Biomass waste wood	0	0	1	0	5	44	1%
Energy from waste wet	8	41	4	3	34	258	4%
Energy from waste poultry litter	0	0	0	1	6	0	0%
Energy from waste MSW	0	0	1	1	8	67	1%
Energy from waste C&I	0	0	2	1	13	106	1%
Energy from waste landfill gas	1	7	0	0	0	0	0%
Energy from waste sewage gas	0	0	0	0	2	0	0%
Total	50	176	70	292	1,061	4,667	

Table 69 Current capacity and renewable energy resource in Selby. Current^o refers to facilities that are operational or have planning consent

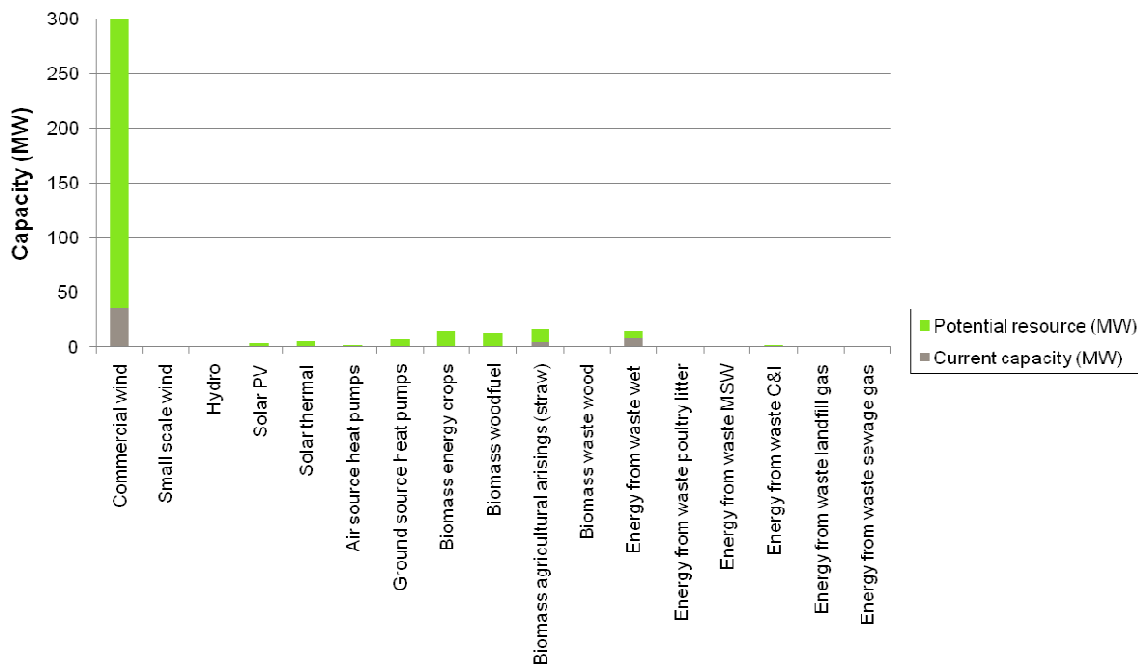


Figure 95 Current capacity and renewable energy resource in Selby. Current^o refers to facilities that are operational or have planning consent.

Capabilities on project:
Building Engineering - Sustainability

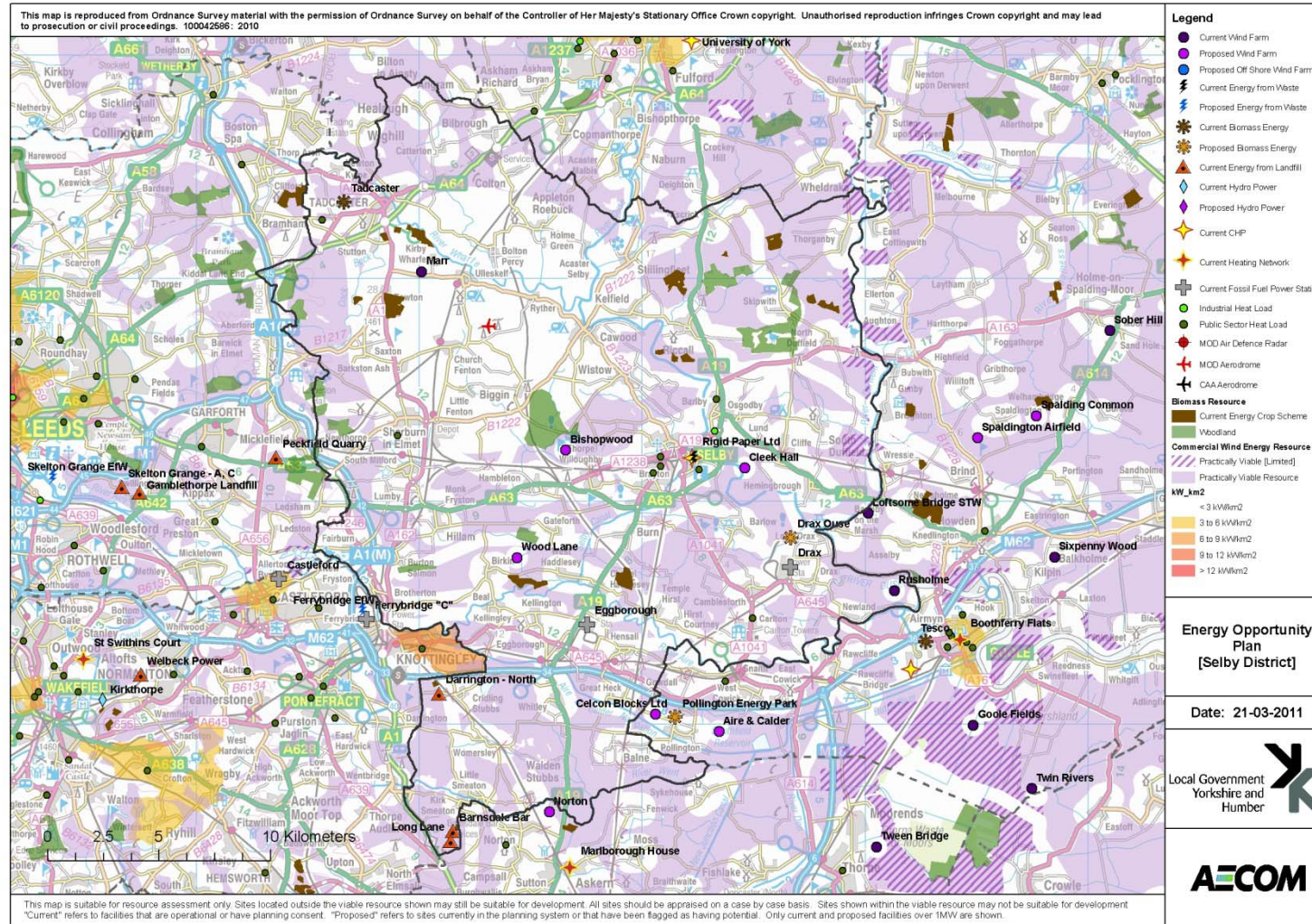


Figure 96 Energy opportunities plan for Selby. "Current" refers to facilities that are operational or have planning consent. "Proposed" refers to facilities currently in the planning system or sites that have been flagged as having potential. Only current and proposed facilities over 1MW are shown. The areas with purple hatched shading described as "Practically viable [Limited]" represent areas where commercial scale wind energy development should be viable but the number of turbines may be restricted due to environmental constraints. Please refer to section 5.15 and appendix A for more details.