

Capabilities on project:
Building Engineering - Sustainability

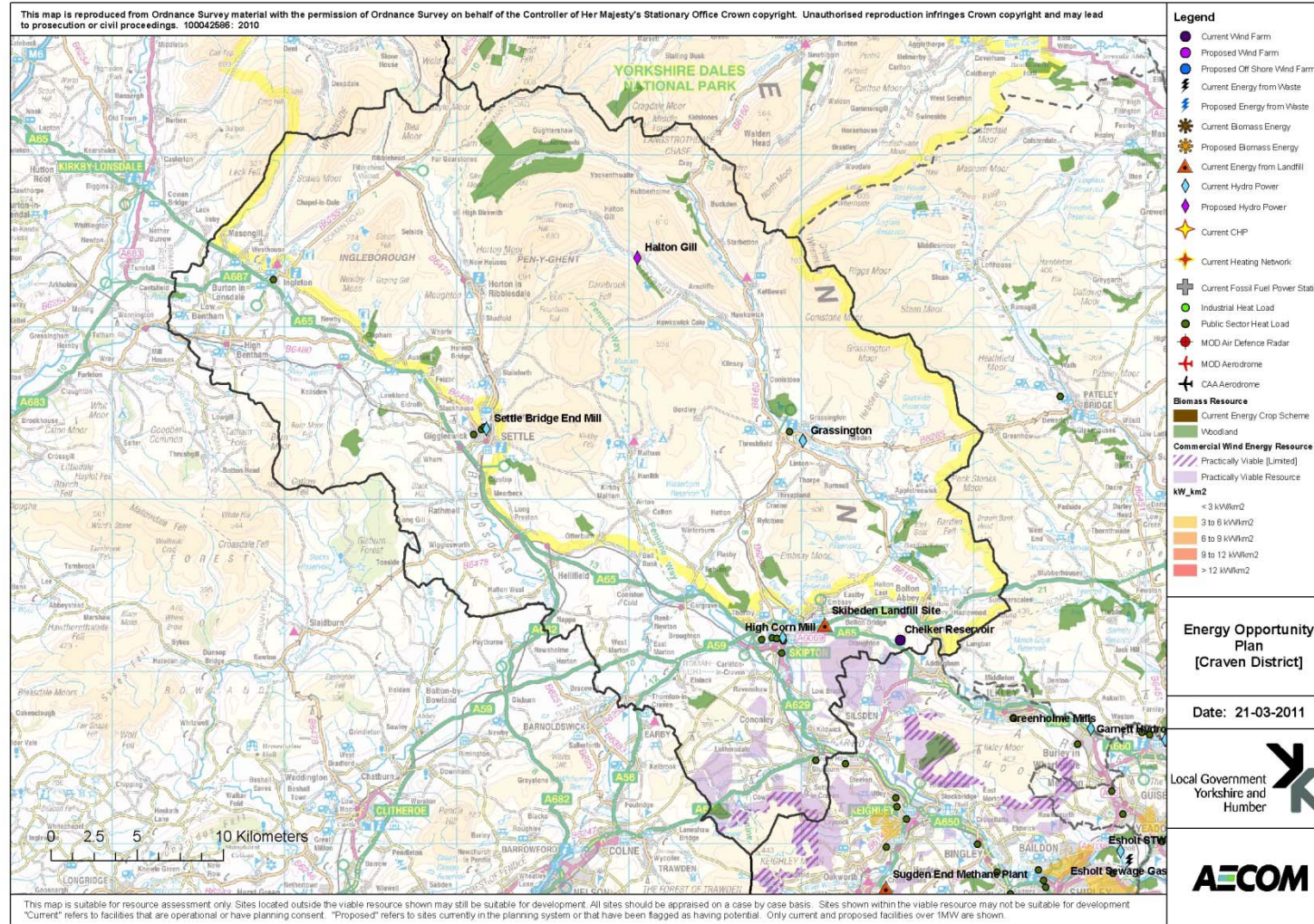


Figure 67 Energy opportunities plan for Craven. "Current" refers to facilities that are operational or have planning consent. "Proposed" refers to facilities currently in the planning system or sites that have been flagged as having potential. Only current and proposed facilities over 1MW are shown. 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.

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B.5 Doncaster

Population: 291,600

Land area (km²): 568



Doncaster has a diverse settlement pattern; the main urban area of Doncaster with its town centre, employment areas and suburbs lies in the centre of the borough. Around it the borough is mainly rural, with a dozen market and coalfield towns and approximately 50 villages.

The town centre has sufficient heat density to support district heating networks, and there is a network located in Doncaster College. Swinton and parts of Mexborough also have the potential to support a district heating network.

Biomass is also an opportunity, which is being slowly developed in the Borough. A large 10MW biomass plant has been proposed at Briar Hill Farm and there are several locations in the borough where woodland could be managed to provide fuel. Energy from waste is another opportunity and a plant at Hampole Quarry has been proposed.

Doncaster has significant opportunities for commercial scale wind energy, although some of the borough is constrained by Robin Hood airport to the south.

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Doncaster	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	91	239	0	298	784	0	0%
Small scale wind	0	0	0	1	2	0	7%
Hydro	0	0	0	0	1	0	0%
Solar PV	1	1	0	13	9	0	0%
Solar thermal	0	0	20	0	12	1304	6%
Air source heat pumps	0	0	11	0	17	722	4%
Ground source heat pumps	0	0	7	0	12	440	4%
Biomass energy crops	0	0	12	7	98	790	2%
Biomass woodfuel	0	1	24	0	62	1568	6%
Biomass agricultural arisings (straw)	8	56	8	4	61	519	3%
Biomass waste wood	0	0	2	1	15	123	4%
Energy from waste wet	2	10	1	1	13	95	1%
Energy from waste poultry litter	0	0	0	0	0	0	0%
Energy from waste MSW	10	67	4	2	28	234	4%
Energy from waste C&I	0	0	5	2	39	328	3%
Energy from waste landfill gas	10	51	0	0	0	0	0%
Energy from waste sewage gas	1	2	0	1	6	0	0%
Total	122	426	115	330	1,261	7,692	

Table 56 Current capacity and renewable energy resource in Doncaster. Current[†] refers to facilities that are operational or have planning consent

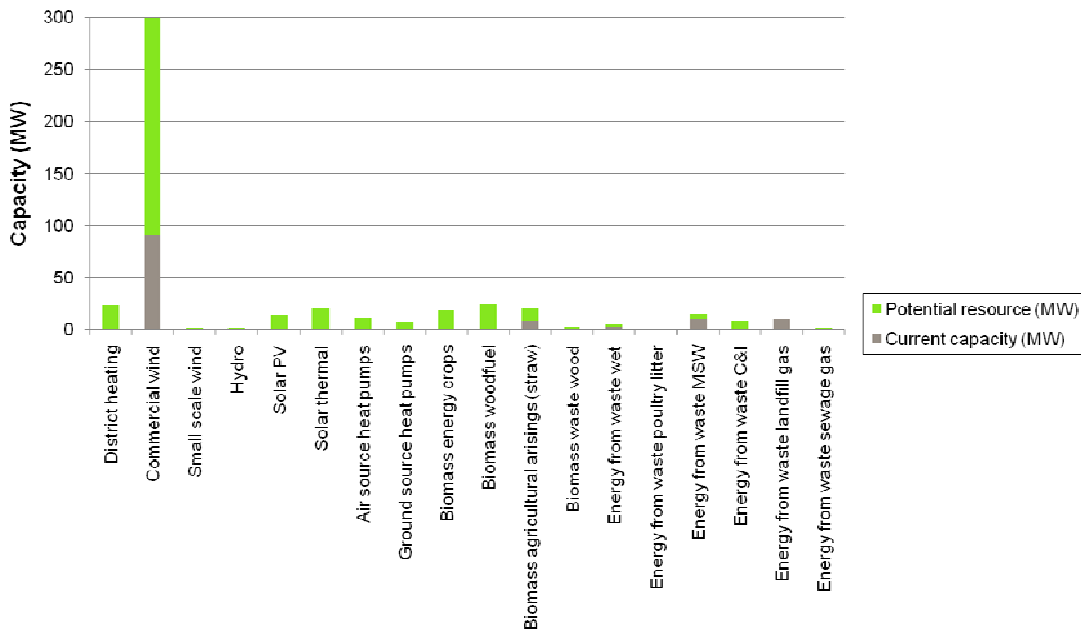


Figure 68 Current capacity and renewable energy resource in Doncaster. Current[†] refers to facilities that are operational or have planning consent

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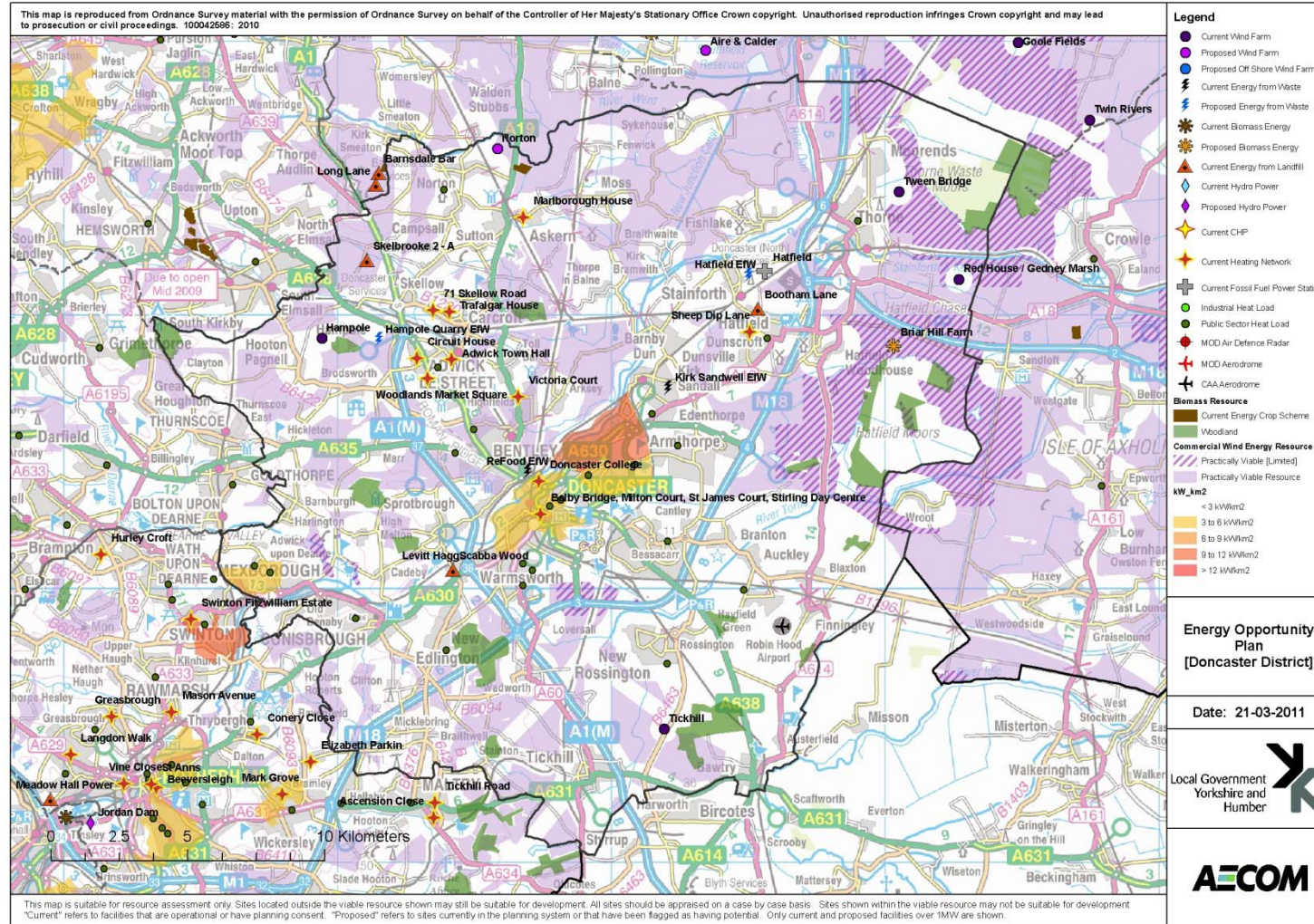


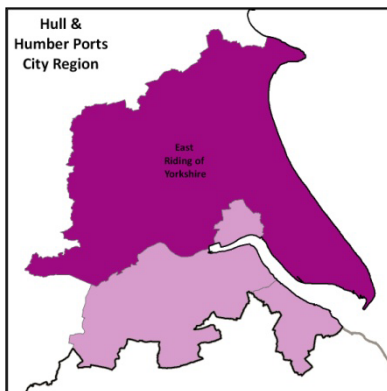
Figure 69 Energy opportunities plan for Doncaster. "Current" refers to facilities that are operational or have planning consent. "Proposed" refers to facilities currently in the planning system or sites that have been flagged as having potential. Only current and proposed facilities over 1MW are shown. 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.

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B.6 East Riding of Yorkshire

Population: 337,000

Land area (km²): 2,479



East Riding of Yorkshire, one of the largest unitary authorities in the country. The largest town is Bridlington with 35,500 people. The other major settlements are Beverley (30,500), Goole (17,500), and the 'Haltemprice' settlements to the west of the City of Hull: Cottingham (17,000); Anlaby/Willerby/Kirkella (23,500); Hessle (15,000) and Driffield (12,000). However, over half the population live in rural communities.⁶⁴

East Riding's renewable energy installed capacity is large and diverse. There is a collection of CHP plants in the south, with a cluster near Cottingham; Council run leisure centres that use CHP; an energy from landfill plant in the south and one in the northeast; energy crop schemes scattered throughout the area; a proposed energy from waste plant in the south; and 30MW of energy from burning straw consented in Goole, Tansterne, and at Gameslack Farm near Wetwang.

Currently, 278 MW of grid connected renewable energy proposals have been granted approval, with installed capacity of around 53 MW. While this is well over the Regional Spatial Strategy 2010 target for the East Riding of 41MW in terms of permitted capacity but not installed capacity, the target is not a ceiling. The Secretary of State commented in the decision on the Hall Wind farm proposal that "the Council's success in supporting renewable energy generation should not limit the support it gives to other future proposals."

To accommodate the increase in power generation, the current electricity grid requires upgrading.

This study has found that East Riding's greatest renewable energy resource is wind; the authority has the most potential for commercial scale wind energy in the Yorkshire and Humber Region. There are 2 wind farms in operation in the authority area; the 30MW Lisset Airfield Wind Farm and the 9MW Out Newton Wind Farm, and there are commercial scale wind turbines installed at Loftsome Bridge and Saltend Waste Water Treatment Works. There are 10 wind farms that have been granted planning permission and a further 3 are in the planning system currently awaiting a planning decision. As can be seen from the Energy Opportunities Plan, there is substantial opportunity for additional wind power to the east and west of the authority, whereas the north is constrained by landscape constraints.

There are a small number of biomass energy crop schemes. Outside of Hull, the Energy Opportunities Plan shows potential for district heating in Goole; the opportunity to connect to the pending straw biomass facility due to be constructed by Tesco at its distribution centre should be explored. As the largest urban area in East Riding, Bridlington also has potential for a district heating network. There is also potential within the Major Haltemprice Settlements, or built area of Hull.

The 2009 Annual Monitoring report states that "the average East Riding citizen produces more CO₂ domestically (this includes central heating fuel and electricity) than the Yorkshire and Humber average." It attributes this to the high proportion of detached homes in the authority. Whilst detached houses are often less energy efficient than flats and terraced homes, they also tend to have higher potential for microgeneration technologies such as solar PV and heat pumps.

The authority's success in rapidly adopting renewable energy presents a constraint to future adoption rates, particularly for wind energy. Many residents believe that there are already too many commercial scale wind farms in operation and political opposition appears to be growing.⁶⁵

⁶⁴ Local Development Framework The Fifth Annual Monitoring Report, East Riding of Yorkshire Council, December 2009

⁶⁵ "Residents welcome rejection of wind farm after appeal", Yorkshire Post, January 2011

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East Riding of Yorkshire	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	240	631	0	652	1714	0	0%
Small scale wind	0	0	0	3	4	0	15%
Hydro	0	0	0	0	0	0	0%
Solar PV	0	0	0	11	9	0	0%
Solar thermal	0	0	20	0	12	1309	6%
Air source heat pumps	0	0	15	0	23	971	6%
Ground source heat pumps	0	0	3	0	5	184	2%
Biomass energy crops	0	0	48	27	399	3232	9%
Biomass woodfuel	0	0	55	0	145	3687	15%
Biomass agricultural arisings (straw)	30	212	72	36	568	4802	26%
Biomass waste wood	0	0	2	1	14	115	3%
Energy from waste wet	2	10	5	5	47	357	5%
Energy from waste poultry litter	0	0	0	4	20	0	0%
Energy from waste MSW	0	0	4	2	34	291	5%
Energy from waste C&I	0	0	5	2	39	328	3%
Energy from waste landfill gas	3	18	0	0	0	0	0%
Energy from waste sewage gas	2	6	0	2	6	0	0%
Total	278	878	294	745	3,323	19,600	

Table 57 Current capacity and renewable energy resource in East Riding. Current^o refers to facilities that are operational or have planning consent

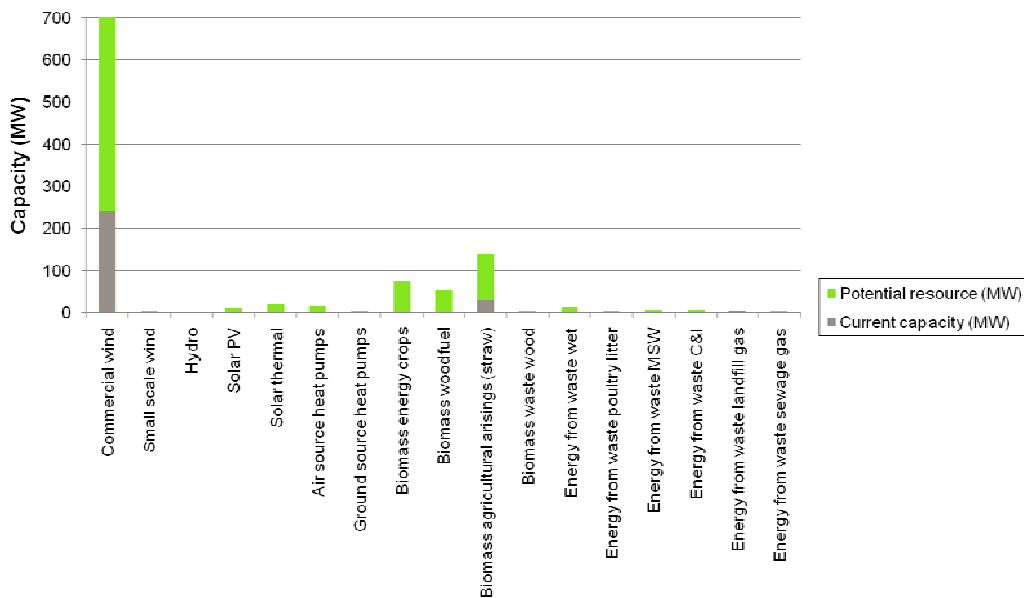


Figure 70 Current capacity and renewable energy resource in East Riding. Current^o refers to facilities that are operational or have planning consent

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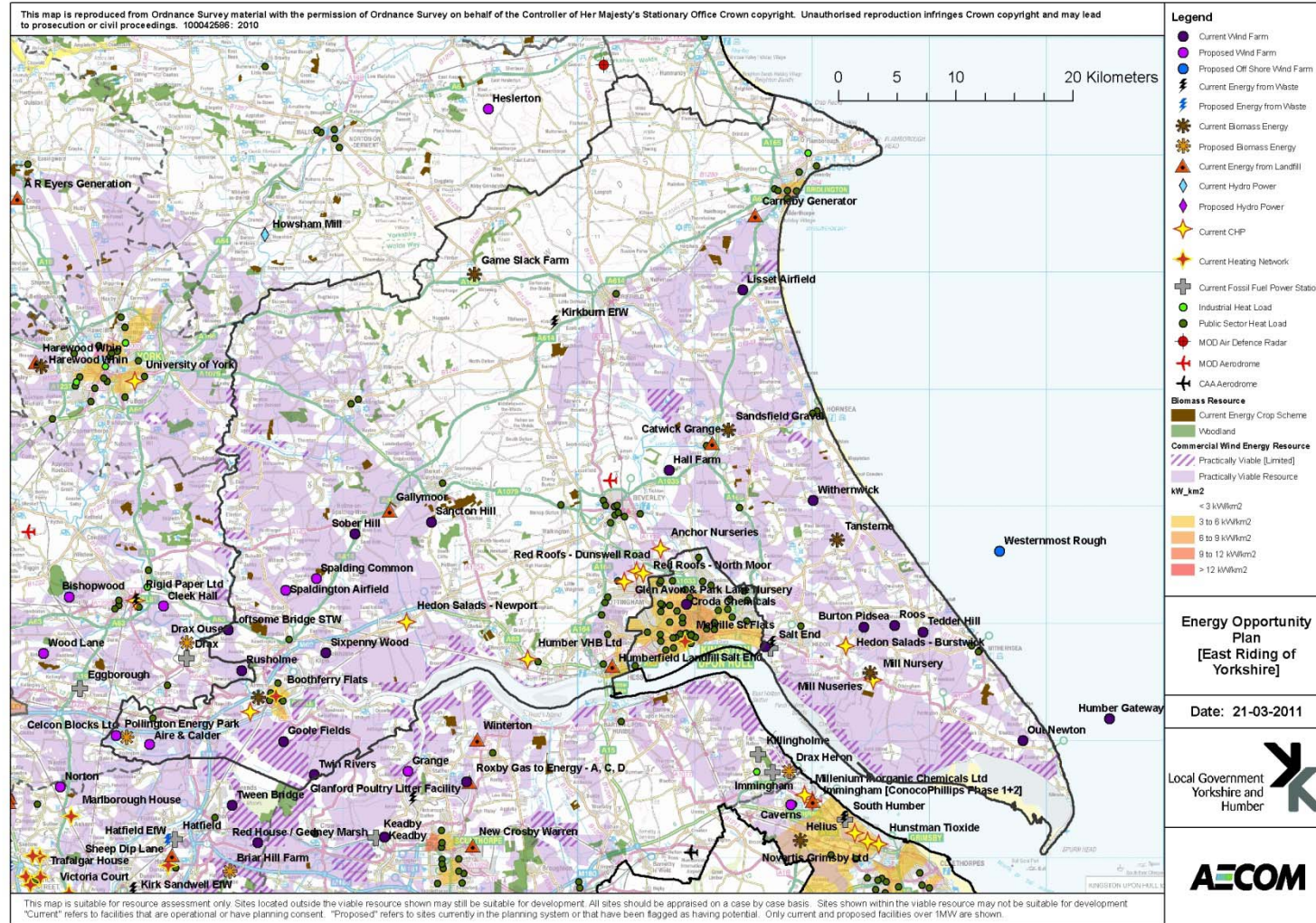


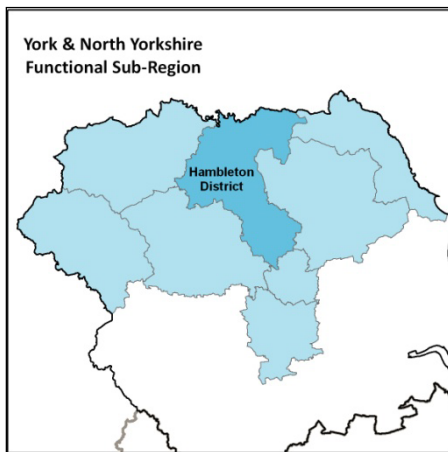
Figure 71 Energy opportunities plan for East Riding of Yorkshire. "Current" refers to facilities that are operational or have planning consent. "Proposed" refers to facilities currently in the planning system or sites that have been flagged as having potential. Only current and proposed facilities over 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.

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B.7 Hambleton

Population: 86,900

Land area (km²): 1,311



Hambleton District is one of the largest districts in England. Sandwiched between the Yorkshire Dales and North York Moors National Parks, it is essentially rural.

About 75% of the district lies within the Vales of York and Mowbray (the drainage basins of the Rivers Ouse and Swale), which comprise low lying, fertile, intensively farmed arable land and run the entire length of the District from north to south. This limits the potential to grow energy crops for biomass. There is some woodland on the North York Moors National Park that could be managed to provide biomass.

There is significant potential for commercial scale wind in a band running from north to south through the middle of the district and there is some potential for hydro. The Seamer wind farm currently straddles the boundary between Hambleton (which has two turbines, representing 2MW of capacity) and Stockton. Other than that, the installed or consented base of renewables is limited to a few biomass crop schemes scattered through the district and two hydro power plants in Linton Lock and Aiskew water mill.

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Hambleton	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	16	42	0	226	594	0	0%
Small scale wind	0	0	0	1	2	0	7%
Hydro	1	4	0	0	0	0	0%
Solar PV	0	0	0	3	2	0	0%
Solar thermal	0	0	5	0	3	320	1%
Air source heat pumps	0	0	7	0	10	443	3%
Ground source heat pumps	0	0	2	0	3	112	1%
Biomass energy crops	0	0	42	23	345	2794	8%
Biomass woodfuel	0	0	14	0	36	922	4%
Biomass agricultural arisings (straw)	0	0	15	7	116	982	5%
Biomass waste wood	0	0	0	0	3	28	1%
Energy from waste wet	0	0	4	3	35	264	4%
Energy from waste poultry litter	0	0	0	2	12	0	0%
Energy from waste MSW	0	0	1	1	9	74	1%
Energy from waste C&I	0	0	3	1	20	173	2%
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	0	0	50	0	219	3333	9%

Table 58 Current capacity and renewable energy resource in Hambleton. Currentⁿ refers to facilities that are operational or have planning consent

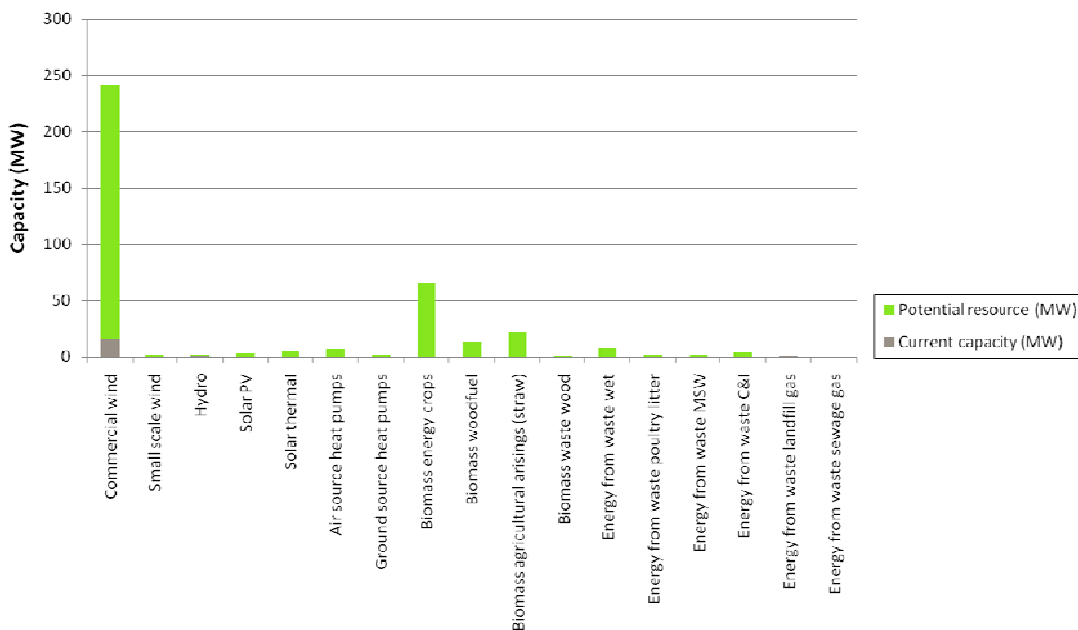


Figure 72 Current capacity and renewable energy resource in Hambleton. Currentⁿ refers to facilities that are operational or have planning consent.