Question number			Answer	Accept	Reject	Marks
2	(a)		Any one of Reduced (running) costs; No atmospheric pollution / CO_2; Renewable (resource);	No polluting emissions No greenhouse gases Cleaner (only if qualified)	The wind is free No costs	1

Question number			Answer	Accept	Reject	Marks

2	(b)		Up to two points about each of unreliability, environmental issues, site choice, maintenance difficulties, data use, or cost. 1 mark per point to a maximum 4 marks
			
			Unreliability -
			  the wind does not always blow (at the right speed);
			  the turbine does not always provide output OR a back-up generator is needed;
			Environmental effects -
			  spoils the view OR is noisy;
			  (construction) destroys habitats OR a hazard to flying birds;
			Site choice –
			  a large site is needed;
			  a windy site is needed;
			Maintenance difficulties –
			  need to work in remote location (usually);
			  need to work in a hazardous location e.g at height / sea;
			Data use –
			  one turbine produces less power than a power station;
			  need many/800 turbines to give same output as coal-fired;
			Cost –
			  building a wind farm needs much money / time;
			  other costs for research / land / maintenance;
				Accept – appropriate reverse arguments in terms of the suitability of coal-fired power stations
				
				Ignore comments about efficiency or cost effectiveness
						4

					Total	**5**

Question number			Answer	Accept	Reject	Marks
8	(c)	(i)	4.8 (m/s) ;			1
		(ii)	Idea that momentum is conserved; Substitution; Calculation; e.g. $p_1 = p_2$ / $m_1 \times v_1 = (m_1 + m_2) \times v_2$ $6.4 \times 6 = (6.4 + m_2) \times 4.8$ $m_2 = (38.4 \div 4.8) - 6.4 = 8 - 6.4$ $= 1.6$ (kg)	Allow e.c.f. from incorrect momentum calculation in (b)(ii) and /or incorrect velocity reading e.g.: Idea of conservation of momentum; $m_2 = [(b)(ii) \div (c)(i)] - 6.4$; correct evaluation of this; e.g. 5 m/s → 1.28 kg Allow for one mark - A calculation that only leads to total mass e.g. = 8 kg;		3
					Total	**9**