

Renewable Energy Debate Transcript

Interviewees: Katie Dawson, Megan Phillips

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Katie Dawson: Good afternoon, this is Katie and Megan, students at the University of Reading, and we are about to debate for and against wind and water as renewable energy sources.

Megan Phillips: So, Katie, would you like to start us off?

Katie: Yeah, so first of all, both of these sources are free, unlike coal or gas, which are extracted, bought and sold. Also, because they are renewable sources, this means that we will not use up and run out of them. Additionally, they won't pollute the environment. It's a shame that we have so much potential, for both of these sources, which are not being tapped into. For example, the UK is an island, where better to tap into than its water source? Again, wind energy has great potential because, on a yearly average, it is very reliable for countries such as the UK and the US where it is very common.

Megan: True, but couldn't you argue that wind power can be irregular and variable, and changes daily depending on weather conditions? Energy storage systems and back-up power supplies would be needed to harness this power efficiently. You know, industries have been reluctant to invest in wind power until said storage systems have been perfected to compensate for the irregularity of the wind.

Katie: That's a good point, but you could say the same thing about wave energy. This is because although there might always be waves, some days, some days, it won't be as "reliable", because the waves may not be strong enough to produce a meaningful amount of energy.

Megan: Well, compared to wind energy, the good thing about water energy is that it can be stored in the hydroelectric power stations. These stations are useful when there is suddenly a high demand for power, like when everyone puts the kettle on, for, like, the half time during a sports match. The widespread switching on of kettles and stoves calls for a lot of power. This is where storage systems are indispensable. Hydro-electric power stations take

a lot less time to start up than non-renewable power plants. There is a storage full of water ready, and it can start generating energy quickly.

Katie: That sounds really promising for hydroelectric energy. However, its efficiency still relies on external factors (i.e. the weather), making it unreliable sometimes. Water flow can be subject to the seasons, for example, and a dry summer will not result in a lot of energy production. And, on the other hand, floods could reduce output by having too much water.

Megan: Well, water aside, natural hazards and weather issues that windmills may face include earthquakes, lightning strikes, hurricanes, and icy weather conditions, all of which having the potential to either create damage to the turbine, or present a risk to the people and property nearby. Unless wind turbines are designed to withstand these hazards, it limits the location they can be built.

Katie: You do have a point, windmills are subject to whatever nature throws at it, however, I'd argue that it is manageable. For example, the possibility that ice might form and then fly off the blades and hit someone would be reduced by shutting down wind turbines during icy conditions. And in Europe and North America the consequential effect on the annual energy output will be very small, because it's not too icy too often. Plus, you could also argue that every building is subject to natural hazards and the weather conditions, so, if they have to design buildings to withstand these hazards, what's stopping them from designing wind turbines which do the same?

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Megan: That's a great point, actually! But now, do you think we should turn our attention to environmental factors?

Katie: Yeah, so in terms of wind turbines, I'd say that they are very environmentally friendly in terms of land use. This is because they require less land than solar panels, and some unrenueable power stations, for the same amount of energy to be produced. Also, the land under the turbines could be used for other purposes. For example, it is possible to grow crops or allow farm animals to roam at the base of the wind turbine. Overall, I'd say that they're more space efficient, environmentally friendly on the land, and more versatile.

Megan: That's true, though in terms of wave energy, there is no land use or damage from generating electricity. And, if we're talking about hydroelectric power, then they're also space efficient because the hydroelectric stations and power cables can be installed underground, minimising its impact on the environment. The dams created for the station can also create a better living environment for some animals and plants, as they can prevent natural disasters such as floods and severe erosion.

Katie: You're right, it can create a better living environment for some animals. However, these dams potentially provide a breeding ground for unwanted pests such as mosquitoes. Also, when you're building the dams, you have to flood valleys and divert streams from their natural course, which can create irreversible effects on the surrounding area. Most notably,

when damming a river or a stream, which is necessary for water energy systems, this can have a permanent effect on the long-term ecological balance of that particular environment. This is because you are flooding an already existing ecosystem, and creating a pond or lake where there wasn't one before.

Megan: Well, that is true, but speaking of the local ecosystem, wind turbines may also negatively impact the local wildlife. Birds have been injured after colliding with the blades, and in some cases, the turbines may even scare away local birds, or alter their flight paths. I can't imagine that the local wildlife enthusiasts aren't going to be very supportive of that.

Katie: You're right, it is important to think about the wildlife, and birds in particular are an important point of discussion. However, they are affected less than you think. Studies *did* find that birds were injured occasionally, but death by collision was highly uncommon, if it did occur at all. Most birds just either fly around the turbine or over them. And not to forget about water energy, wave generators can also have a negative effect on animals, in particular, the local marine environment. This is because the noise emitted from such machinery can interfere with their movement as you are changing the 'soundscape' of the ocean.

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Megan: Well, speaking of noise, we should turn our attention to public opinion. I'd argue that public opinion is very important, as they have the power to alter or prevent the construction of these wind energy projects. I'd say the three main issues regarding public opinion are visual aesthetics, noise, and location. Some turbines can be noisy, and may disturb local residents. Wind turbines also need to be located in unobstructed areas, which usually means they're visible, and the more energy you need, the more turbines need to be installed.

Katie: Yeah, it is true that we must value and think about public opinion and that some people do find wind turbines ugly and noisy. However, with careful design, noise levels can be kept low. Additionally, it has been found that the majority of people in Europe and the US find wind turbines visually acceptable. When thinking about the windmills in the UK, if wind turbines are thought of as visually obstructive, this could then make putting windmills offshore more attractive. However, if we are thinking more globally, other countries with sparsely populated but windy coastal regions, such as Pakistan, could benefit from installing clusters on coastal strips.

Megan: Well, both wind and water systems along the coast and offshore may pose as eyesores for locals. Tourism may also be affected along coastal areas due to the unappealing installations. If they were located offshore instead, they might get in the way of recreational areas (for, private boats), as well as shipping lanes, and they could even damage the shipping vessels themselves. And if we're talking about costs, then placing wind turbines far away offshore ends up costing more. The further away and the deeper the water you place it in, the more the price increases - not only when building, but also transferring the energy back to the land.

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Katie: That's a good point. That's perfect, shall we now move on to discussing the human and political side to this debate

Megan: Absolutely. Like you stated at the beginning of the debate, wind and water are freely available renewable resources. Water and wind are not affected by conflict or political disagreements, unlike coal or oil, which are often fought over. Indeed, these political issues have even led countries to consider turning to renewable energy. One example I can think of is the oil crisis of 1973, which actually led the UK government to review prospects for using renewable energy sources.

Katie: That is interesting. Although you said that water is a free source, it is, however, subject to an array of laws and regulations regarding its use. Water right laws are some of the most complex and abundant laws in existence. They're really difficult because they are largely localised, differing from country to country and city to city. There have therefore been countless court discussions concerning the priorities of public, private, industrial, and mining needs. Therefore it is necessary that water power systems abide by certain laws and regulations before doing anything.

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Megan: Very true, but legislation aside, I think what the public is most concerned about is the jobs that they can create. Would you like to start us off with any particular job opportunities?

Katie: Yes, so for example with water power systems, they can offer an array of long term jobs for those who live locally. For example, you need to hire people for the construction. And then you'll also need to hire people for maintenance of the equipment. which will forever require employment. Additionally you've got the engineers which will be employed in order to create such machinery. These jobs offer permanent opportunities for local people, unlike coal or oil where remote areas are overloaded with an imported workforce which then leaves after a few years once the energy is removed.

Megan: So essentially, what we're concluding here is that the only people who could be potentially concerned about these new jobs are those in the non-renewable sectors?

Katie: Yeah, exactly. So there would be a decline in the number of jobs in the traditional sectors of energy production. For instance coal power plants. But this would be compensated by the number of people employed by the wind and water power industries.

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Megan: Ahh, okay, well, then I believe all that's left to consider is the future of renewable energy and its relationship to climate change.

Katie: Yeah so, renewable energy systems are promising for developing countries and those already developed. This is because, we've repeated, the source is free, and the systems are cheaper to build.

Megan: Well, if we're talking about climate change, though, without a global effort, the use of renewable energy sources in only a couple countries would not be enough to reduce the effects of climate change. We also can't ignore the idea that developing nations may want to increase their levels of energy consumption. It makes sense, and is only natural, that they would want to enjoy the same standards of living as developed countries, but unfortunately this may include the construction of non-renewable power plants. If an international, collective effort isn't made to reduce climate change, then it's likely that these countries won't see it as economically worthwhile to invest in renewable energy alone.

Katie: However, I think we can look at the future of renewable energy sources more positively than this. I believe that if there is a leading country, which acts as that initial push for action, there could be a rewarding domino effect of a collective involvement around the globe. I think that the things we have discussed today showcase the promising future that each country could have on a national level, but also an international one too. We can reduce the amount of natural materials that we use to create electricity and decrease our damage to the environment.

Megan: Absolutely, I completely agree. And though we've been comparing wind and water energy, I think we should remember that they don't have to be a stand-alone source of electricity. Both have their advantages and disadvantages, and by combining them, they can balance each other out in a way that is practical, sustainable, and efficient. So, Katie, I believe we've covered everything?

Katie: Yeah, I believe so!

Megan: Well, it was lovely to hear your points. Thank you for the debate.

Katie: Thank you, too.