

IB Economics — IA commentary coversheet

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Windfarm industry urges UK to lift onshore subsidies ban

Firms say 800 renewable projects ready to plug gap left after Wylfa nuclear plant scrapped

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Ministers have been urged to drop their block on subsidies for onshore windfarms, as industry figures showed that nearly 800 renewable projects are ready to plug much of the power gap left by the abandonment of the Wylfa nuclear project.

Hitachi dropped plans for the nuclear plant in Wales this week, raising questions over what would replace it and leading the business secretary, Greg Clark, to admit that renewable energy sources are more competitively priced than nuclear.

The wind industry said if a bar on onshore windfarm subsidies was lifted it would allow the construction of 794 projects which have won consent through the planning system and are ready to build. Together they would generate around 12 terawatt hours of energy a year; two thirds of what Wylfa would have produced.

A dozen firms are behind the schemes, including small players and big names such as Scottish Power, Vattenfall, E.ON, EDF Energy and npower's owner Innogy. But onshore windfarm installations have stalled since the government banned them from securing subsidies.

Emma Pinchbeck, the executive director of RenewableUK, which compiled the figures, said: "We have ready-to-go onshore wind that can help close the gap between the low carbon power we need and the amount government policy is actually delivering, and this week's announcement on nuclear power has made this mammoth task even harder."

But she said the government had "stacked the odds" against building the onshore windfarms needed to hit the UK's carbon targets, by excluding developers from competing for subsidies in auctions. Only offshore windfarms can compete for state funds currently.

The government's figures show onshore windfarms are the cheapest source of new electricity generation. The Hinkley Point nuclear project in Somerset won a guaranteed

price of £92.50 per megawatt hour, compared with £57.50 for offshore windfarms in the early 2020s. Experts think onshore windfarms could hit around £50 per MWh.

Labour said that Clark should match his comments on renewables with action. Rebecca Long-Bailey, the shadow business secretary, said: “The government point to renewable energy as an alternative to their failing plans on nuclear. But these figures reveal that the government is being equally reckless with onshore wind – the cheapest form of new renewable energy.”

The Scottish energy minister, Paul Wheelhouse, said that after the failure of Hitachi’s projects, it was time for the UK to **prioritise onshore windfarms and other renewable technologies over nuclear.**

The government’s infrastructure advisers, the National Infrastructure Commission, urged a rethink that would allow onshore windfarms to compete for support.

Energy analysts and renewable energy companies including BP-backed Lightsource have also written to the government urging it to allow onshore windfarms and large solar farms to secure a government-underwritten price for power from their projects.

But energy minister Claire Perry, who has hinted in the past year that a U-turn on the subsidy ban could be on the cards, appears to have cooled on the idea.

“Both I and the Scottish conservatives were elected on a manifesto that said there should be no more subsidy. We didn’t think subsidy for onshore windfarms is correct,” she told the Guardian earlier this month, when asked if there were plans for a rethink.

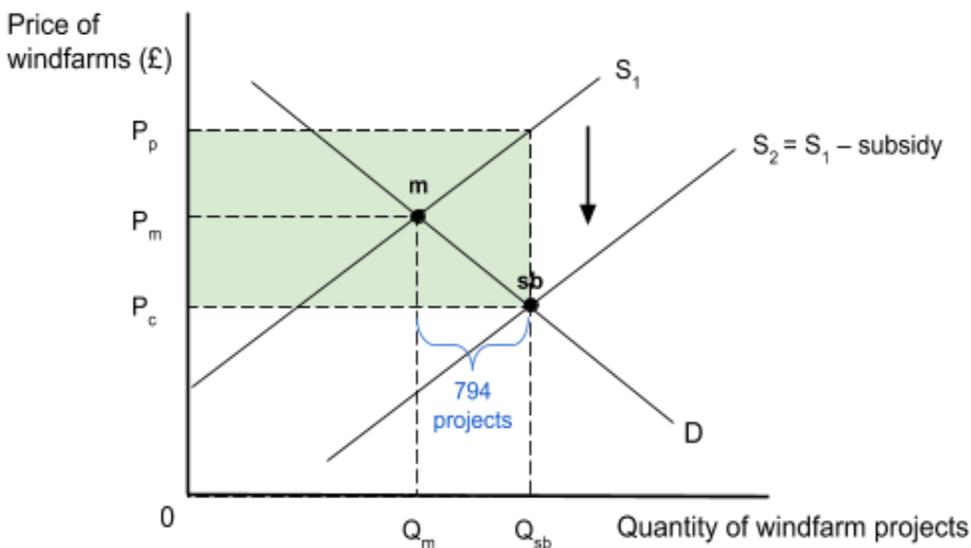
Perry said onshore windfarms had reached the point when they no longer needed to be subsidised, a claim not supported by industry. “I think we are getting to a subsidy-free point ... The sense I have is that onshore wind deployment will continue without the substantial subsidy.”

Commentary 1: “Windfarm industry urges UK to lift onshore subsidies ban”

The UK windfarm industry wants the government to “lift onshore subsidies ban”¹ to “allow the construction of 794 projects”². Subsidies are a form of government intervention: a payment by the government to firms to promote increased output and lower prices. Windfarm subsidies are used to encourage production and consumption of wind energy. Windfarms are merit goods: they are considered desirable for consumers as they create external benefits, but are underprovided by the market. That is why windfarm subsidies are a method to improve resource allocation by correcting the positive externality of wind energy.

Figure 1 shows the impacts of a subsidy on the windfarm industry. The analysis commences at **m**, competitive market equilibrium, where Q_m windfarm projects are produced at price P_m . The subsidy shifts the supply curve to the right (from S_1 to S_2). As a result of the subsidy, the equilibrium quantity produced and consumed increases by 794 projects from Q_m to Q_{sb} , while the price paid by consumers falls to P_c ; the price received by producers increases to P_p . The new equilibrium, as a result of the subsidy, is at **sb**. The green-shaded area, $(P_p - P_c) \times Q_{sb}$, represents government spending to provide the subsidy.

Figure 1: Impacts of a subsidy on the windfarm industry

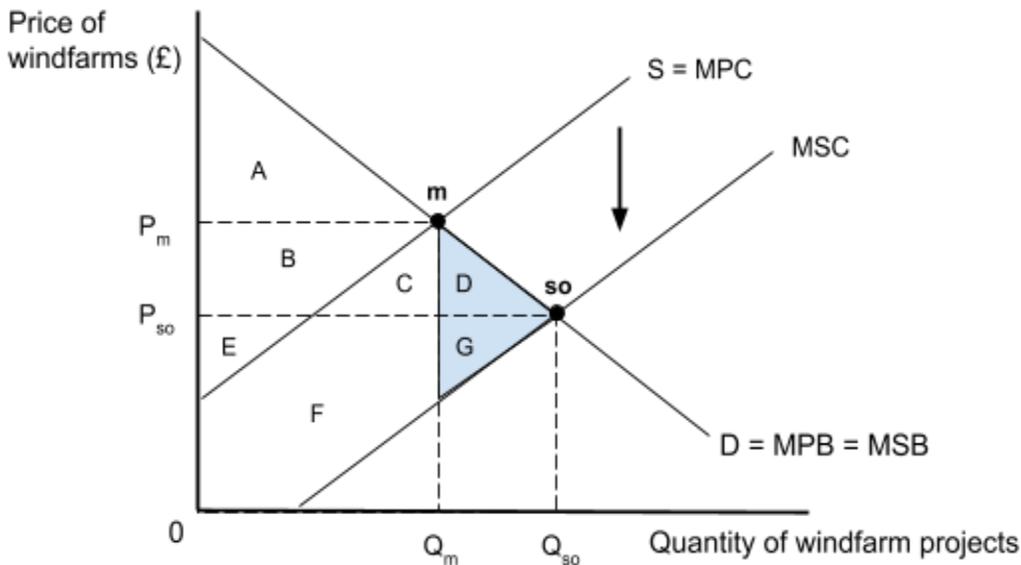


¹ Adam Vaughan, “Windfarm industry urges UK to lift onshore subsidies ban,” *The Guardian*, January 18, 2019, p. 1.

² Ibid.

In the case of the windfarm industry, a subsidy would be implemented to correct the positive production externality, seen in Figure 2. Windfarms have positive production externalities, as they are merit goods. There is an external benefit of producing windfarms, equal to the difference between the marginal private cost (MPC) and the marginal social cost (MSC) curves. Q_m is the market equilibrium quantity, while Q_{so} is the social optimum quantity, where $MSB=MSC$. The free market underallocates resources to the production of windfarms, and too little is produced relative to the social optimum ($Q_m < Q_{so}$). At market equilibrium (m), consumer surplus is equal to area A, producer surplus is equal to B + E, and external benefits are equal to C + F. At social optimum (Q_{so}), consumer surplus is equal to areas A + B + C + D and producer surplus is equal to E + F + G. At Q_{so} , there are additional benefits of D + G; that is the welfare loss at market equilibrium due to an underallocation of resources because of the externality. The blue-shaded triangle in Figure 2 illustrates this welfare loss. The positive externality indicates market failure. At Q_m , $MSB > MSC$, which indicates allocative inefficiency.

Figure 2: Subsidy correcting the positive production externality of windfarms



Implementing a subsidy is effective in increasing the quantity of windfarm projects, while decreasing the price. This means a subsidy will cause an outwards shift of S, equilibrium will move from **m** towards **so** to attempt to correct the externality. It is unlikely that the government can completely correct the externality, but it is a step in the right direction.

As merit goods, windfarms are underprovided by the market and should therefore be subsidised by the government. However the government has “‘stacked the odds’ against building the onshore windfarms needed to hit the UK’s carbon targets, by excluding developers from competing for subsidies in auctions”³. That is because “onshore windfarms are the cheapest source of new electricity generation”⁴ and the government believes they do not need to be subsidised, “a claim not supported by industry”⁵.

The government should subsidize onshore windfarms to make the majority of stakeholders better off. Consumers and producers will be better off because the quantity produced increases from Q_m to Q_{sb} and the price paid by consumers decreases from P_m to P_c . The government is the only stakeholder worse off in the short-run as a result of the subsidy, because the government has to finance the subsidy, which involves an opportunity cost and a burden on its budget. However, society as a whole is better off because social surplus is maximised and $MSB = MSC$. Long-term the subsidy will correct the externality and lead to cleaner, more sustainable energy. Due to the difficulty in measuring the size of the externality, it is hard to determine the amount of the subsidy, a short-term disadvantage in implementing the subsidy. However, the long-term advantages of supported industry growth and a possible correction of the positive externality clearly outweigh the short-term disadvantages.

In judgement, the government should “prioritise onshore windfarms and other renewable technologies”⁶ and should therefore lift their onshore subsidies ban. As a government response to threats to sustainability, funding for clean technologies reduces negative environmental impacts. If the UK is going to reach the targets outlined in the Paris Climate Agreement, they need to subsidise clean technologies, like onshore windfarms.

Word count: 745

³ Ibid. p. 2.

⁴ Ibid.

⁵ Ibid.

⁶ Ibid.