The 12 investments our experts wo

How might renewables change the face of energy? And where should investors look for profits? John Stepek chairs our Roundtable

John Stepek: What areas of the energy sector are you most excited about as an investor?

Edward Guinness: Solar. It's changed beyond recognition. We're seeing the benefits of costs having fallen so sharply over the last five years – the number of installations is growing every year.

Richard Crawford: In some areas, solar-derived energy now costs the same as that from fossil fuels – at least for the retail consumer. Similarly, the cost of wind has dropped too – not as spectacularly as solar, but in the UK at least, it's certainly a cheaper technology to deploy than solar.

Richard Hulf: I'll stick with oil and gas – US onshore shale oil and gas in particular. Technological advances are enabling extraction from tighter and tighter unconventional formations, which has been a big change in the sector.

Jamie Richards: As a manager of mainly solar funds, I'll have to say solar too – costs seem to be falling at a much faster rate than for other renewables.

John: Seb?

Seb Beloe: Well, I can't say solar now, can I! There are really interesting opportunities in energy storage, but maybe that's a bit further out. I'd look at energy efficiency – energy-efficient lighting and buildings, and more efficient manufacturing processes. It's a bit dull compared to the glitzy world of solar, but it's also a great place to invest because it doesn't need subsidies and it's increasingly compelling as energy bills rise.

John: That's the big fear with renewables, isn't it? That subsidies will be taken away.

Edward: Today's investors do need to consider how subsidies are likely to evolve. But ten years from now, I don't think we'll be having the same sorts of discussions on subsidies – it won't be about dollar amounts any more. It's more likely to be about structural subsidies. For example, most renewables have had priority dispatch on power grids.

John: What does that mean?

Edward: Priority dispatch means that whenever the renewable is producing electricity, the grid will take it, at the expense of any coal or gas that might be operating. There's also net metering, which is how the subsidy is structured in the US – you sell your electricity back to the grid at the retail electricity price – so your meter runs backwards, effectively.

John: If solar becomes a mass energy source, with people generating locally, what happens to the national grid?

Edward: Well, in 25 years' time, say, lots of these solar panels will still work, and will be producing very low-cost power, without any subsidies at all. That means utilities will have to become service companies: providing balancing power (for when renewable energy isn't available or sufficient to meet demand) and maintaining the quality of the grid service.

> "The average American sees it as his birthright to drive an SUV"

That's a big shift and not all of them will manage it.

Richard H: Isn't decentralisation a key aspect? You don't have large, centralised producers of solar power – you just have lots of people with their own panels, so that you are losing less energy through the distribution process?

Edward: For now, the grid is still the most effective form of energy storage. A coal and gas-backed network is a lot cheaper than the best energy storage technologies at the moment, and that's likely to continue for quite a while.

Jamie: But in the US, SolarCity, the solar panel installer, is talking about storage at the residential level, and it's experiencing resistance from the utilities for the reasons you outline. Storage on a larger scale in Germany is now being subsidised similarly to solar panels. So it is coming.

The changing face of energy – slowly but s

Seb: Yes, Elon Musk, the chairman of SolarCity and electric car maker Tesla, wants to produce batteries more cheaply for electric vehicles, but they could be used for energy storage for buildings too. But the other point to make is that while solar lends itself to decentralisation – you and I can become power generators because the modules aren't very expensive – this isn't true of many other renewables.

Wind in particular – offshore wind even more so – isn't something that you and I can just go and harness ourselves. And while we are having a bit of a boom in solar at the moment, in the long term, for the UK at least, wind is going to do the heavy lifting. That's still a utility-scale industry. So the nature of the grid system will depend on the natural resources available to any given area.

Richard H: On that decentralisation point, we've invested in a company called **Intelligent Energy (LSE: IEH)** that makes fuel cells, which could eventually be used to power cars. But they could also drive a

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surely, we're turning towards renewables

shift towards using natural gas for home electricity generation. The fuel cell runs on hydrogen. Natural gas – methane – has a lot of hydrogen in it. We've already got a gas grid, so you distribute the gas, and it goes into your reformer at home – which extracts the hydrogen from the gas – and you use your fuel cell to generate electricity locally rather than from a power station. Micro-fuel cells could also be used in handheld devices – although this hasn't quite captured the market's imagination yet, judging by Intelligent Energy's recent share-price collapse.

Richard C: The other point is that the way we use power will also adapt to changes in the way we generate power. Smart meters embedded in our devices will allow consumers to check the price of energy before deciding whether or not to switch on the washing machine, for example. Once meters allow users to check the price of power as they use it, we'll see a huge change in usage patterns.

Seb: The key is to make it seamless and easy – we already have Nest thermostats, for example, which are much more attractive and engaging as a technology than traditional thermostats. No one really wants to spend all their time thinking about their energy use. Even I don't, and I love this stuff.

Richard H: But something we've noticed is that energy consumption has just gone through the roof in the US. There was an incredible spike at the end of last year. People are attributing it to the fact that Americans are now getting used to the idea that they've got a – not infinite, but fairly long-term, secure supply of cheap gas, and also now cheap oil as well. So it's encouraging the consumer to stop buying small cars and go back to buying SUVs.

John: So the shale story has convinced them that we're back to the days of cheap energy forever?

Richard H: Yes – we've got it and it's a secure supply, so let's burn it! Your average American sees it as his birthright to drive an SUV whenever he feels like it.

Edward: And long may that last. It underpins the whole energy investment thesis. It improves your quality of life and if it's cheap enough, people will just consume more and more of it.

John: I suppose you could say the opposite of solar is coal. Coal stocks have been hammered. Is coal in long-term decline?

Richard H: If you're a Western economy, it's already a politically bad fuel – gas is a better alternative. If you're in South Korea or China you have a slightly more pragmatic view: we've got a population growing at X%, GDP growing at Y%, we're short of energy, and we've got a tonne of coal in the ground – we can't ignore it. But even then, the air quality in the inner cities in China, for example, is just so bad that they have to do something about it. The best alternative is probably the shale gas reserves that they're putting a lot of money into at the moment. But it comes down to what is practical. These massive, fast-growing economies are the real engines of demand growth now. The reason we're likely to go from 90 million barrels a day of oil consumption now to maybe 100 million in 2025 is not down to us or the US, it's the emerging economies.

Edward: But even the US has surprised everyone with its increased oil consumption over the last two years.

Our panel

Seb Beloe
Head of research, WHEB Asset Management

Richard Crawford
Fund manager, InfraRed Capital Partners Limited

Edward Guinness
Fund manager, Guinness Asset Management

Richard Hulf
Fund manager, Artemis Global Energy Fund

Jamie Richards
Fund manager, Infrastructure Funds, Foresight Group

John: What do you see for the oil price?

Richard H: Even with geopolitical ups and downs, the oil price has been very stable over the last three years – Brent has stayed at around $100-$105 a barrel. The shale revolution is helping oil production to grow in line with demand, but because of the economics of production, there will only ever be just enough to keep up. So it will probably stay in that range. You've also got the political factor in the form of Opec (the oil cartel). If Saudi Arabia doesn't like the way the oil price is going, it can just switch off supply.

John: Would allowing widespread crude exports from the US make a huge difference to the global oil price?

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Richard H: No. They're a significant global producer, but they're also a significant consumer – so they're going to use most of what they produce. But it affects Saudi Arabia in terms of America not demanding oil from them, because it's got its own.

Richard C: Would you say the same for liquefied natural gas (LNG)?

Richard H: There is talk of trying to get natural gas exported. But there's so much Nimbyism in America. Nobody wants to have an LNG plant in California. And shipping costs are still a constraint, because the main consumer is in the Far East.

Edward: And the main export terminals don't kick in until 2017.

Richard C: Gas supplies are becoming a bigger issue for the UK. We've got dwindling production in the North Sea, which means we're importing more from Norway. But Norway can't keep up – so it really means more piped gas from continental Europe – which means Russia.

Richard H: Which also raises a fascinating political point. The US doesn't rely on Russian gas itself, but it would do anything to switch the supply into Europe away from the Russians. Because the US now has its own oil supply, it doesn't rely on Saudi Arabia. So that means it can start talking to Iran as a potential supplier of gas for Europe.

John: Great – so we get to switch from relying on Russia to relying on Iran!

Richard H: Quite, but ultimately we need to import our gas from somewhere – it's a case of, politically, who do we prefer?

John: What about fracking in the UK?

Richard C: I know from experience that there's local resistance to wind turbines and large-scale solar plants. If that's what happens with renewable energy, I think we've got to brace ourselves for the reaction we'll get on fracking.

Edward: I'm not sure I agree – fracking is much less visible.

Jamie: What, than a solar photo-voltaic (PV) plant?

Edward: Absolutely. You can put a drilling installation on a tiny pad in an industrial area and cover a wide area underground. It's very different to putting a wind turbine or a solar PV plant in the middle of a field in beautiful countryside.

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Solar costs have fallen so much in recent years that it can now rival fossil fuels

Richard H: I agree, those are the facts. I've seen fracking in the US – it takes about a month and it's bloody noisy and there's a tonne of kit and trucks and the rest. But once it's done it's just a wellhead and it's producing gas. You don't have to frack it again for another ten years. The real barrier to shale is that people fear it, because of what they think it'll be like.

> "The real barrier to shale is that people fear it"

Richard C: Don't you also have significant lorry movements though?

Richard H: Well, that's the big issue in the UK. The shale oil is in the Weald Basin, which is in the stockbroker belt, so good luck with that. But even in the industrial areas, we just don't have the kit. We don't have the rigs, trucks, suppliers or infrastructure. So I think it's going to be slow. But there will be a tipping point where people will say: "My energy bill's half of my disposable income – this is just crazy! Let's just give fracking a go."

Edward: But there's also an unrealistic expectation of how cheap the gas will be – it's not going to drop to US levels. We just don't have the industry on that scale. I think we should do it just in case – but we should have low expectations.

John: What about nuclear?

Jamie: Well Hinkley Point is being built imminently in the UK – owned by the French and paid for with British subsidies.

Edward: If you look at the government's case ten years ago for what it thought nuclear would cost today, it was talking about £30 a gigawatt hour. It's ended up promising the French £92.50 an hour for 40 years. So it's not a great deal. Although it's very good in terms of underpinning the argument for renewables, if you're paying that much for nuclear, you might as well just do solar, because it'll be a lot cheaper.

Richard H: I still stay close to the Institute of Mechanical Engineers, where I started my career. A recent article from them pointed out that a key issue with nuclear plants is that they're all done on a bespoke basis – so they're expensive – and they're very big, so planning consent can take 15 to 20 years. So there's talk of engineers designing smaller plants on a modular basis, with a lot more sharing and standardisation of technologies.

Seb: Yes, but given that we've just been talking about Nimbyism on fracking and solar PV farms, the idea of having a modular nuclear reactor down the end of your road is going to be a hard sell!

John: Shall we move on to your tips?

Edward: I'll stick with a stock I've tipped before, **Trina Solar (NYSE: TSL)**. The solar sector has the potential to go from building 40 gigawatts (GW) of supply a year to 80GW-100GW in the next three or four years, and they're one of the top companies in the sector. I'll also go for **China Singyes (HK: 750)**, which is now a leading installer of large-scale Chinese installations. It's perfectly placed to benefit from growth in China and trades on a reasonable multiple. My third pick is a home-grown company, **Good Energy (LSE: GOOD)**. It's done very well but still trades on a single-digit multiple. I think it has the potential to go from 40,000 utility customers currently to 500,000, and to build up its generation base too – either by doing it itself, or by getting long-term deals with an infrastructure fund.

John: Richard? I realise you're not a stock picker, so just tell us about your fund.

Richard C: We manage the **Renewables Infrastructure Group (LSE: TRIG)**. It invests in wind and solar farms, and offers long-term yield to investors at an attractive rate. The listed sector for operating renewable energy assets now has six funds, including ours. That's developed quickly over the last year. Some funds invest purely in wind, or in solar, or – like our fund – in a mixture, which brings diversification benefits. I think we'd all like to see the sector develop along the lines of the broader infrastructure sector, which has a similar number of companies and has produced good long-term returns – for example, we also manage HICL, an infrastructure fund.

John: Richard, what are you buying?

Richard H: I'm sorry, I'm still with oil and gas. The first would be Norway's **Det Norske (Oslo: DETNOR)**. Its original claim to fame was the discovery of the Johan Sverdrup field in offshore Norway, which became highly politicised, hitting the shares. But Det has just bought Marathon Oil's Norwegian assets, and it has a new CEO who really knows what he's doing, so I expect the stock to re-rate.

The second is a newly listed company called **Hurricane Energy (LSE: HUR)**. It's discovered a basement oil formation west of the Shetland Islands. It had one well that produces 10,000 barrels a day, and now it's got to figure out how it's going to farm this project out and develop it with someone who really knows what they're doing. The shares have dipped recently, so it's a good chance to get in.

Edward: But what happens to royalty rates when Alex Salmond takes over?

Richard H: Ah yes, that's a discussion for another day, isn't it? My third pick takes us back to US shale – **Hess Corporation (NYSE: HES)**. It's just sold its retail and refining arms in the US, so it's a pure play on exploration and production. It's also selling its international assets in order to invest more capital back in the US onshore. So that's a way to invest in the US shale story.

John: Jamie, tell us about your fund.

Jamie: **Foresight Solar Fund Limited (LSE: FSFL)**, our listed solar fund, and the half dozen other funds in the sector

> "People underestimate the importance of climate change"

that Richard mentioned are all essentially generating similar returns, roughly a 6% inflation-linked return. I'd say that solar funds take less risk in delivering that return because solar is less volatile than wind. That means the cash flows, and therefore the yields, are more predictable.

On a separate point, infrastructure-wise, Richard touched on smart meters earlier – there's going to be a huge smart meter roll-out in the next five years. A lot of the existing 'dumb' meters are owned by people such as Macquarie – the utilities don't own them as this activity is not an efficient use of their capital. So there's an opportunity coming for new investors to fund the roll-out of new smart meters.

John: So expect infrastructure funds for smart meters in the future. Seb?

Seb: It's interesting we haven't discussed climate change. People consistently underestimate its importance as an issue, particularly the depth of political will to do something about it. So one stock we like is **Nibe Industrier (Stockholm: NIBEB)**, a Swedish heat pump maker. Heat pumps are one of the few ways to decarbonise space heating, because you're using electricity rather than a fossil fuel. It's a very established technology in Nordic markets and Germany, and this is a great little company, which has just acquired a US business. It has done very well, so it's probably more for a long-term holder than someone looking for something that's particularly undervalued.

Then there's **IPG Photonics (Nasdaq: IPGP)**, which makes fibre lasers, used in various manufacturing processes. This is a much better, quicker, more energy-efficient technology than the traditional laser. The company has a 70% share of the market, and manufacturers are gradually adapting the technology.

My third pick is **Canadian Solar (Nasdaq: CSIQ)**. It's really a Chinese company, but it's listed in North America. It's similar to Trina. It makes solar modules, but also has a big downstream business (in other words, selling completed solar projects) – it's building projects all over the world and should benefit from rapid growth in solar. This is where the value really is, because the manufacturing side has become so commoditised and prices are falling – good news for solar farm developers.

John: You mentioned efficient lighting – any tips?

Seb: US company **Acuity Brands (NYSE: AYI)** – its LED business is growing by 60% or more a year. If you're fitting out anywhere that has the lights on a lot – an office, hospital, gas station, anything like that – it's a no-brainer. The savings are huge. In residential settings there's a bigger up-front capital cost, but even that's come down significantly. So that's the big market they're still trying to break. But as for the commercial and industrial market – it's just a matter of time before it is dominated by LEDs. It's a very different business model though, because you almost never have to replace the bulb. So the businesses can't sell bulbs as a repeat business. They have to find another way of making money.

Our Roundtable tips

Investment	Ticker	Price
Trina Solar	US: TSL	$11.31
China Singy.	HK: 750	HK$11.64
Good Energy	LSE:GOOD	238.5p
Renew. Infra.	LSE: TRIG	106.25p
Det Norske	Oslo: DETNOR	NOK66
Hurricane	LSE: HUR	43p
Hess Corp.	US: HES	$99.80
Foresight	LSE: FSFL	102.75p
Nibe Ind.	Stock.: NIBEB	SEK190.6
IPG Photonic.	US: IPGP	$62.16
Canadian S.	US: CSIQ	$28.65
Acuity	US: AYI	$114.36