

# Article

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## Startups in the Energy Transition

*A contribution of Arjan Schippers, journalist on Energy Policy & Renewable Energy.*

The changes in the energy industry provide many opportunities for young entrepreneurs to set up their own company. Why are startups so important for the energy transition?

Startups have been an increasing phenomenon, attracting a lot of attention. But what is a startup? Most people would say they are young and small high-tech companies, but not every new or small business is a startup. And they're not always high-tech either. A common definition of a startup is a new business offering innovative products or services, with an inherent ability to grow because of its scalability. Unlike large companies, which are often risk-averse and slow to change course, startups can be characterised by being adaptable and creative. This is more or less true for all startups. What is different about energy startups is that they are operating in an industry that is rapidly changing.

### Transition

The energy industry is going through a transition phase: the old centralised fossil fuel-based structures are being replaced by more decentralised systems with new clean and smart technologies. This brings many technological challenges, but also changes the way consumers interact with the system and with each other. This requires new technical and ICT solutions, and there are social, legal and economic ramifications too. New business models are needed. For startups these are exciting times, full of business opportunities. Small, innovative companies are more likely than well-established companies to think 'out-of-the-box', take risks and come up with new products and services. With this pioneering instinct, startups have an essential role to play in the acceleration of the energy transition. A true pioneer in this sense is Delft startup Bluerise, a developer of **OTEC technology** which harnesses the thermal energy of the oceans. Bluerise unique selling point is that it combines this complex technology with other technologies, like Desalination and Seawater Air Conditioning. It takes a gutsy startup to develop these high-risk but very promising technologies.

### Challenge

Startups can fulfil their innovative potential in different ways. They can create their own niche markets with new products or services. Groningen startup Water & Energy Solutions for example, came up with a completely new energy optimisation solution for the process industry. By creating such a unique proposition the company is going from strength to strength. Startups can also break into existing markets with an innovation or an innovative adaptation of existing products or services, as startup Twilight did. Twilight looked at existing street lighting and introduced a smart adaptation with its concept of intelligent dimmable street lighting, saving costs and energy. Apart from introducing innovative products and services, startups make a major contribution to the energy transition by challenging and encouraging the incumbents in the industry to follow their lead and innovate too.

### Partnerships

This doesn't mean startups and large well-established companies are always competitors. They can also engage in strategic partnerships. Dutch energy supplier Eneco for example, recently partnered with start-up Nerdalize, to test and roll-out Nerdalize's ground-breaking concept of using heat from computer servers to heat homes. Instead of placing servers in huge data centres, they will be distributed in homes in so-called eRadiators. The power will be used twice: for computing and for heating. Households will get free heating because Nerdalize will cover the electricity costs for the computing. Through its partnership with Eneco Nerdalize gains access to households to lease its product, while Eneco is

able to offer an innovative product to its clients. Partnerships between large energy companies and start-ups can be especially fruitful when a marketable technological innovation needs scaling up. This is particularly true for engineering startups. Tidal turbine developer Tocado for example entered into a strategic partnership with Spanish energy giant Repsol, gaining access to Repsol's vast energy industry and market expertise. In return, Repsol benefits from the technological innovations of Tocado. In the years since entering this partnership, Tocado has outgrown the label 'startup' and has become a more mature company with an international client base.

### Capital

One of the problems virtually all startups face is limited financial means. They may not need much finance if they're offering a new service for which only a couple of PC's are needed or are developing a smartphone app, but most startups will at some point need to raise a significant amount of capital. Commercial bank loans are more or less out of the question for startups; it's too risky for banks. One option for startups is to look to so-called business angels for funding. They are wealthy individuals with entrepreneurial experience who are willing to invest in a startup in return for an equity stake. They will share their experience too.

**Groningen startup Relighted** for example, has greatly benefitted from finding such a mentor when it was running into liquidity problems. Venture capital is another option. A venture capital fund can provide greater sums of money than a business angel, as they are institutions rather than individuals. But in return for the risk they undertake, they often want significant control over the company. Many of the American internet startups that have become global players have been financed by venture capital. An increasingly **popular way of attracting finance is crowdfunding**. This method uses mainly internet platforms to channel money from many different people towards a particular goal or a business venture. In the case of energy startups, crowdfunding has the added benefit of raising awareness and engaging people with the energy transition.

### Knowledge and expertise

Startups perform best when they have plenty of access to knowledge and expertise, in an environment with like-minded people to inspire each other. That increases the chances of technological advances and breakthroughs being achieved. Silicon Valley, with its links to Stanford University, is a famous example of such a vibrant ecosystem of knowledge and inspiration. It's the birthplace of Google, Yahoo and many other internet and high-tech firms that started out as small startups and went on to become household names. Startups will be essential to taking on the many challenges facing the energy sector; maybe some of them will become just as transformative as those internet companies.

Energy Academy and its partners offer **Startup Fast Track**, which is a business acceleration programme for energy startups that provides funding, coaching and energy expertise.

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