



The next phase of energy transition: Five key trends to prepare for

From regulatory changes to shifts in investment flows, Dr Steve Fawkes provides the key trends likely to define the continued transition from fossil fuels to greater electrification.

The move away from fossil fuels and towards greater electrification, coupled with the growth of renewables and storage technologies, is well underway. To date, we have been in what we can consider the first phase of the energy transition, a period characterized by grid-scale renewable energy generation of mainly wind and solar.

We're now entering a new phase of energy transition. Here, the focus will shift towards decentralized energy demand rather than centralized supply. This progress to a more decentralized, decarbonized and digital energy system will see whole new markets emerge and bring greater economic and environmental benefits.

Below, we consider five key trends to expect from the next phase of energy transition sector players should be prepared for.

Trend 1: Decentralized energy generation and storage will transform markets

Into the next phase we will, of course, continue to see the growth of large-scale renewable generation plants. However, behind the scenes, greater numbers of diverse energy users will be adopting decentralized energy generation, storage and flexibility techniques. This change is already starting to transform energy markets.

The rapidly falling cost of solar and battery systems, the switch to EVs, alongside the widespread problem of grid constraints, is leading energy consumers to shift towards being 'prosumers,' that is, both producers and consumers.

The essentially monopolistic, or at best oligopolist, structure of energy markets — where only a handful of companies exert significant control — won't continue unchallenged into the next phase of transition. You can expect to see the acceleration of the move towards a highly decentralized model where there will be millions of distributed energy resources and millions of energy producers.

Each of these will produce when they can and trade energy and flexibility across their local areas.

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Trend 2: Old-world regulation will change to be new-world ready

Global electricity market design and regulation has been designed for the old world and is struggling to keep up with the rapidly changing reality on the ground. However, regulation will ultimately have to change to respond to the technical and financial developments that characterize the next phase of the energy transition.

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Trend 3: Converging technologies will reduce costs and constraints

For energy consumers of all types, it now makes economic sense to generate as much power as you can from solar PV, store what you can in batteries, improve energy efficiency and electrify vehicles and heat.

The economics of this have changed so rapidly that not everyone has caught up, but they will. This convergence of technologies reduces energy costs, reduces dependence on a constrained grid, reduces carbon emissions and can also create new sources of revenue.

For the grid, these converged technologies can overcome constraints and reduce the capital cost of upgrades. At a national level, it can also increase energy security by reducing the need to burn imported gas in power stations. This represents what we can think of as a 'win-win-win' proposition.



Trend 4: The rise of 'energy as a service' companies

The energy companies of the future are starting to emerge and they will look very different to the old ones. They will offer 'energy as a service', with the emphasis being on delivering the end-use energy and services that consumers need, rather than centralized generation or commodity power.

The energy company of the next phase of transition will make it easier for energy users to develop, adopt and use the new, distributed energy infrastructure.

Expect the winners here to be systems integrators that can design and finance integrated local energy solutions. They will also be able to aggregate multiple small projects using multiple technologies overlaid with digital technology to offer services to their local consumers and the wider grid.

Trend 5: Accelerated improvements in energy efficiency and cuts in emissions

Over the next decade you can expect investment in distributed, integrated solutions to grow, ultimately seeing more investment than that in centralized solutions.

This will accelerate improvements in overall national energy efficiency and reduction in emissions.

For smarter ways to manage the risks and opportunities from the next phase of the energy transition, get in touch with our energy sector specialists.



Dr Steven Fawkes
Managing Partner
ep Group
epgroup.com