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Power Generation: Four key areas shaping the future of energy production

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Abstracts

Power Generation: Four key areas shaping the future of energy production

SUMMARY

Globally the power generation industry is changing and transforming as it adapts to a number of new conditions. Demand for energy is as strong as ever and only expected to grow, whilst at the same time countries want carbon emissions to drop substantially. How the industry meets this challenge remains one of the great technological problems of the next decade. Renewable energy growth is very strong, but there are plenty of problems which might limit some of the technologies in future.
Nuclear power is beginning to recover and there are some great opportunities on the horizon, but overall nuclear might be a difficult sell at present. China is now the leading player in most energy market types, its domestic decisions driving the direction of the world economy. LNG is booming as a cheap energy source that doesn't require a pipeline, but just where does that fit into a low carbon energy system of the future.
Renewable energy is on the agenda of most governments worldwide. In 2018 it is now much more viable a prospect when compared to conventional sources and the vast majority of countries have made significant voluntary pledges through the Paris climate agreement to dramatically increase their percentage of renewable energy production. Wind, solar and hydro sources are doing the majority of the work and are applied according to the specific climate and geography of the country deploying it.
However, some technologies are advancing as quickly as they could and the world currently relies more on hydro than any other resource, which can have dramatic environmental implications. Furthermore, both wind and solar have their own environmental implications that need to be taken into consideration.
The nuclear power market has had a difficult decade, accidents, massive costs and

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environmental damage have all contributed to multiple countries losing their interest in the technology and deciding to moth ball their old plants. Nuclear power perhaps more than any other energy source has to combat public perceptions of its technology and despite what are generally, excellent power industry safety records, the accidents that have happened have been nothing less than catastrophic.
The nature of nuclear technology, zero emissions and its potential to be further developed through new types of reactors will always make it an attractive prospect for countries and despite calamities such as that in Fukushima, the power source is rebounding.
An examination of the role China now plays in the global power generation industry is useful because the vast scale decisions are taken on have impacts that are felt far beyond the country's borders. Recently installed as the leading energy consumer, overtaking the United States, and soon to be the globe's largest economy, Chinese policy and investment wields extensive influence over the global power generation industry.
Such is the extent of government spending power and development of power generation capabilities, China is now the dominant factor regarding the use of coal, both at home and abroad, renewable energy and in dealing with soaring power demands made by an increasingly affluent and aspirational population.

SCOPE

Examine what's happening in the power generation industry at present.

See how different technologies are adapting to a new business environment.

Learn which energy generation technologies are the strongest at present and the best option for countries.

Analyse the big trends in the industry and the players capitalising on them.

REASONS TO BUY

What is happening in the power generation industry?

What are the most important new technologies?

Which countries are pushing new developments?

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What power sources are most attractive at present?

How can countries meet their carbon emissions targets?

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Contents

Executive summary
Renewable adoption is strong, plenty of challenges remain however
Nuclear power is making a resurgence, new technology is coming
China is now a dominant factor in global energy production
Liquefied Natural Gas is changing global power generation
Renewable adoption is strong but plenty of challenges remain
New era of renewable technology is encouraging good levels of adoption
Leading global companies are increasingly demanding renewable energy
Hydro is overwhelmingly the biggest current renewable source globally
Current trends in the hydro industry include the building of small dams
Offshore wind is booming, but efficiency gains are limited without new technology
Size is the main technological achievement which may limit wind energy
Solar is booming all over the world but particularly in China & India
Solar's problem was always storage, but that is now close to being resolved
Every energy source has some environmental cost
Nuclear Power is making a resurgence, new technology is coming
Current nuclear technology will always carry some risk
The fallout from Fukushima was significant for the industry
Japan is tentatively trying to bring reactors back online with new safety standards
Germany has struggled to reduce carbon emissions because of nuclear going offline
The nuclear energy market is recovering because of the need to hit emissions targets
Nuclear energy in its current form is getting more expensive
Subsidies, guaranteed prices, and a poor deal for the consumer
The real answer and future for nuclear is in new technology
Thorium power plants could improve nuclear technology
Nuclear fusion is coming and may be the long term future of nuclear tech
China is now the dominant factor in global energy production
Vast spending on renewable power establishes China as leading global 'green energy' player
Having expanded rapidly, solar power now faces multiple problems
China continues to invest in coal overseas, granting fossil fuels a long-term future
Exporting of coal-fired power plants is influencing the spread of green energy production
Coal will remain central to Chinese power generation for decades to come despite overcapacity problems
Rising domestic demand is forcing up power generation
China is the most important player due to enormous power requirements and soaring demand

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Consumers are living increasingly energy intensive lives, driving demand for more power
Liquefied Natural Gas is changing global power generation
Spread of LNG opens gas to new markets, causing major shifts in power generation
Entry of China as major importer is helping expansion of LNG as a source of power generation
Expansion of LNG opens global power generation industry to fresh players
Creation of trading hubs improves supply security, aiding growth in usage
Demand for LNG is expanding, requiring fresh infrastructure investment
Rising demand reveals future of LNG in global power generation is becoming more secure
Infrastructure development must continue at speed if LNG potential is to be realized
Key Findings
Appendix
Sources
Further Reading
Ask the analyst
About MarketLine
Disclaimer

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List Of Tables

LIST OF TABLES

Table 1: Top 10 LNG exporters, 2016

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About

Globally the power generation industry is changing and transforming as it adapts to a number of new conditions. Demand for energy is as strong as ever and only expected to grow, whilst at the same time countries want carbon emissions to drop substantially. How the industry meets this challenge remains one of the great technological problems of the next decade.

Key Highlights from the report:

Renewable adoption is strong, plenty of challenges remain however.

Nuclear power is making a resurgence, new technology is coming.

China is now a dominant factor in global energy production.

Liquefied Natural Gas is changing global power generation.

Renewable energy growth is very strong, but there are plenty of problems which might limit some of the technologies in future. Nuclear power is beginning to recover and there are some great opportunities on the horizon, but overall nuclear might be a difficult sell at present. China is now the leading player in most energy market types, its domestic decisions driving the direction of the world economy. LNG is booming as a cheap energy source that doesn't require a pipeline, but just where does that fit into a low carbon energy system of the future.

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