

Natural Resources Forum Energy Transition: Myth of Reality

26 September 2019

“Trends and how to apply them”

David Bodanis, Best-selling author, Thought Leader & Futurist

Discussion points:

- Trend lines, e.g. top speed for airline transportation, do not continue upwards indefinitely
- Removing carbon has been an ongoing trend in the energy sector
 - Wood → coal → oil → natural gas ... Hydrogen?
 - Some political policy is hampering this trend
- Business trends tend to follow an S-shaped curve, as people invest into new technologies before they level out
- ‘Scenarios’ (contingency plans) are forecast for various possible futures
 - “What is a key headline you would pay to hear in the near future?”
- Successful mid-level abstractions:
 - Cavendish Lab (Ernst Rutherford): “find out what is inside the atom”
 - Cavendish Lab 2.0: “see what x-rays do to protein crystals”
 - Google: “we are trying to monetise search”
 - Amazon: “sell everything fast, and if possible use AI to help”
 - Pixar: “Use new software techniques to tell traditional stories really well”
- Companies who will capitalise from the future will have worked out their mid-level abstraction to give useful guidelines to their employees

“Look into the future: are we going fast enough?”

Gardiner Hill, BP, Vice President, Carbon Management

Tim Cornelius, SIMEC Atlantis Energy, CEO

Darran Messem, Independent Consultant and Non-Executive Director

Paul Atherley, Pensana Metals Ltd, Chairman

Discussion points:

- *“If closing nuclear means building more coal power, I am not going to do it”* (Emmanuel Macron)
- Grid scale batteries are not currently viable
- NdPr is a key component to motive power
- Amber Rudd will phase out coal power over 10 years
- Big oil is “spending big money to solve big problems”
 - Easy to spend the money, but not to solve the problems

- Not a race to net zero, it is a race to lower carbon emissions
 - 2030 = no idea where renewable focused companies will be because:
 - 70% policy and politics define where and how to use capital
 - Political control will define the direction of energy generation that is being supported
 - Converted coal fire stations are required to aid the development of wind
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“Energy transition in the transport sector”

Mark Neller, ARUP, Director

Philip New, Energy Systems Catapult, CEO

Devrim Celal, Upside Energy Ltd, CEO

Dr Jeremy Leggett, Solarcentury, Founder and Director

Discussion Points:

- Energy transition occurring in the transport sector
 - 1914 Ford EDISON was the first electric car, but it did not appeal to consumers
 - EVs = 2.2% of car sales in H1 2019, with people weighing up:
 - Cost
 - Performance
 - Range
 - Convenience
 - EVs are 10% as efficient as diesel
 - 2mins fuelling = 1000k
 - 2mins charging =100k
 - All transport figures do not consider building the vehicles or the systems attached to running the vehicles
 - BP products are aware of emissions from customers, but do not track
 - 8M tonnes of carbon emissions directly from shell
 - ~100M used by customers of shall after
 - Japan is the only country in the world where solar would not be the most viable form of energy
 - Solarcentury is 21 years old
 - It started at a time when the planet had 200mw of solar power globally
 - Now building 250mw projects
 - Carbon tracker think tank modelling study on running on renewables. Some storage reliance, but not as much as people predict
 - Christian Brayer used real weather data from 45 regions
 - Everything but long-haul travel could be renewable energy
 - Guests are welcome to email: Jeremy.leggett@solarcentury.com for the link to his study
 - “Kill the kWh as cannot be visualised”
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