THE PARIS CLIMATE AGREEMENT IS RIPPING UP THE OPERATING MODEL FOR ENERGY FIRMS

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Introduction

The implications of Paris are to write off fossil-fuel legacy and cut production costs to the bone, which is having a massive impact on the operating models for energy providers.

The last month of 2015 was a very significant one for the world, with Paris setting the stage of the largest international climate conference ever. The world's leaders had come together to tackle the overheating of the world and carbon emissions. Global warming and the pollution of our atmosphere that lies at the root is an issue that will affect us all. From the coastal regions, threatened by rising sea levels, to cities suffering from a thick layer of smog, our health, safety and economies are at risk. The environment needs our help to survive if we want the Earth to be a habitable place for future generations.

With the Paris climate deal in place, there is an agenda to curb climate change. The agreement is a bridge between today's policies and climate-neutrality before the end of the century.

Exhibit 1: Key Aspects of the Paris Agreement

Paris is the first universal agreement to deal with climate change and reduce greenhouse gas emissions. The agreement entails:

- Commitment to keep the global temperatures below 2 °C above pre-industrial times. Essentially this means to stop the rising temperatures before it gets too dangerous and the impact will be irreversible.
- Commitment to pursue efforts to keep the rise of temperatures below 1.5 °C.
- Commitment to limit man-made greenhouse gases emitted to the level the Earth (soil, oceans, trees) can absorb, with a peak in greenhouse gas emissions expected around 2030.
- Rich countries will help poorer countries transition to renewable energy and adapt to climate change by providing climate finance, with a floor of US $100 billion a year by 2020.
- Every 5 years the parties to the agreement will report progress and beef up the ambitions and measures as required by science.

Some say the Paris deal is significant and shows the political will to save the world, while others argue it is not going far enough. HfS sees the Paris Agreement as a major u-turn—an overhaul in the global economic system. The decarbonization of energy has enormous implications. Policies will have to follow the rhetoric, to ensure the measures are put in place to achieve the goals. With the primary goal of the Paris deal being to cap C02 emissions, it is not an archaic task. But, as President Obama said in his speech, there is a real sense of urgency about this challenge. More than 200 nations are determined to save our planet with an understanding of how human beings disrupt our climate. As an illustration, he mentioned 14 of 15 warmest years recorded are since the year 2000. "No nation is immune to what this means," said Obama.

The term “Perfect Storm” is used to describe an event in which a rare combination of circumstances drastically aggravates the outcome. Are we now witnessing a Perfect Positive Storm? Rising social and political pressure in conjunction with technology advances and economic shifts are combining to create a positive atmosphere to address one of the biggest challenges of the coming decades.

The Paris accord can potentially funnel this social and political pressure into an agenda and framework for change. It provides an agenda for energy transition.

At the moment, the energy industry has been locked into a race to the bottom. Prices are dropping perilously close to $30/barrel and the competition introduced in many countries by deregulation has put unprecedented pressure on energy retailers to cut costs to the bone. Stock prices of many players in the energy value chain are down and attracting investment in “old energy” is becoming impossible.

Key Secular Business and Operating Model Impacts Coming out of Paris

- **Distributed infrastructures enable sustainable energy ecosystems:** The current infrastructures are built for a bygone era. New infrastructures are needed that are smarter and seamlessly connected, allowing renewable production and local energy generation. For example, the emergence of microgrids, residential (such as Tesla's Powerwall) and utility scale (e.g., Tesla Powerpack) battery storage for electricity will give a push to local energy systems.

  There is a lot of legacy in the energy world: Plants, grids, information systems, not to mention processes and cultures. As legacy assets are becoming a millstone around the neck of energy providers, legacy has to be written off at a higher pace than anticipated.

- **Investment will shift—follow the money:** One of the impacts of the Paris climate deal will manifest itself in investment shifts—to renewables, to developing countries and away from fossil fuels, away from the old infrastructures and assets. (We already see divestments in power plants running on coal.) HfS expects increased investments in technology-enabled areas such as smart cities and communities.

- **New commercial and operating models are essential for survival:** Both commercial and operating models that have been in effect for decades need to be overhauled as a result of these pressures of changing energy production and consumption. However, HfS sees major new opportunities for new services and revenue streams emanating from these changing regulations. We will see new commercial models emerge, providing greater flexibility for disaggregated power generation and further unbundling of the energy stack. These new models will be introducing new services and product offerings with a big role for Internet of Things services, bringing to life Machine Learning, network effects and enhanced management of consumption patterns, for both energy providers and consumers.

  One of the big challenges of integrating renewable energy resources such as wind and solar into the energy supply chain is their intermittent nature. The wind is not the same today as it was yesterday. The sun doesn't continuously shine and clouds hinder solar energy production. Energy grids have always had issues with fluctuations in energy generation. Emerging storage capabilities are providing part of the puzzle of supply and demand balancing. Predicting supply using Machine Learning will be another part of the puzzle. These are not all hopes for the future; IBM, for example, blended Big Data, connected devices, analytics and machine learning in creating a self-learning weather model and renewable forecasting technology (SMT) with US based National Renewable Energy Laboratory (NREL). SMT combines "domain data, information from sensor networks and local weather stations, cloud motion physics derived from sky cameras and satellite observations, and multiple weather prediction models" (IBM, 2015). SMT improves the accuracy of forecasts by 30%, allowing a better evaluation of renewable's impact on supply, demand and operations.

Another example is Google applying machine learning to the forecasting of energy efficiency of its data centers. Machine learning brought the accuracy of forecasts to 99,6%, enabling Google's engineers to predict issues and incremental optimization of the energy efficiency.

- **Renewable energy is the next normal:** Customers will expect transparency and accountability from energy providers. Transparency into how their consumption contributes to the energy transition, how their footprint is developing, how they can influence the transition in a positive way.

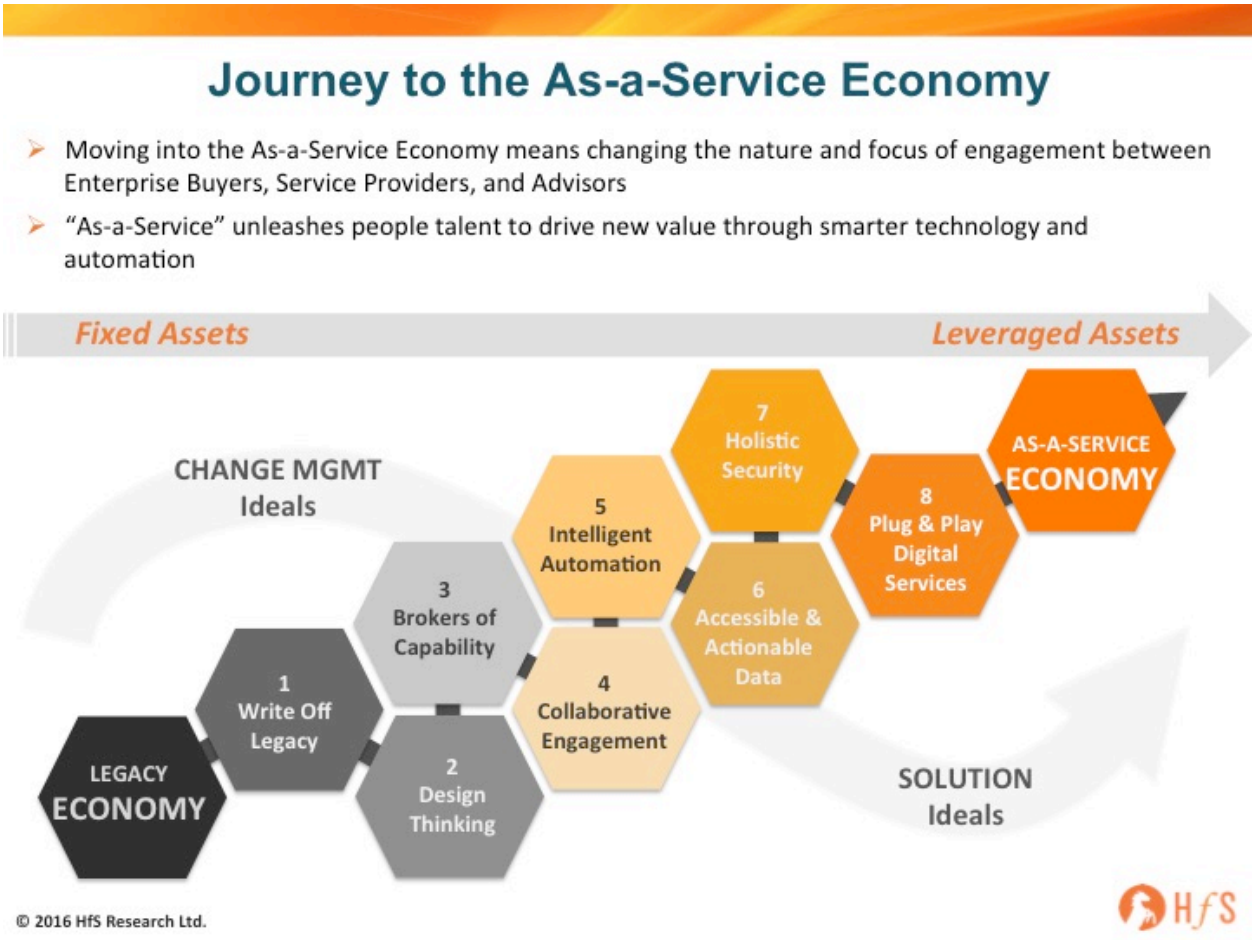
  The core jobs people hire energy providers for are not changing (a heated home, warm water, a charged iPhone). But they expect more from the products they hire. Smart ecosystems with invisible and interoperable plug and play services will help energy providers live up to these expectations.

The Role of the Service Provider to Support this Evolving Energy Industry

1. Co-create the future

One could argue the oil, gas and energy-producing companies have ended up in the "doghouse" in the Paris climate deal. Instead, they should be seen as an integral part of the solution. Energy providers are the enterprise services buyers that desperately need help. For decades, the name of the game was cost cutting and efficiency gains but HfS believes that there is a shift to new value creation as the goal instead.

Foundational assumptions and processes to support the future energy providers have to be re-imagined. Service providers are in a position to help them reinvent their operating models, where Design Thinking can be a crucial approach to design new services and products as well as the interventions to implement change. Service providers need to bring a vision to the table, a willingness to co-invest and build strong business alliances, creating ecosystems in which to thrive.



As the answers are not set in stone, agility will be a crucial characteristic for the energy producer of the future. Subscription based and outcome focused contracts are part of the Collaborative Engagement Ideal, which will facilitate real shared risk/reward deals.

2. Talent Is a Key Ingredient

Real value added partnerships, especially if the quest is to find answers to big unknowns, call for different talent. People who can be strategic, experiment, play with business and revenue models, design new organizational structures and cultures, implement and pivot rapidly. People who have a keen eye for societal, political and technological developments and its ensuing opportunities and threats. Energy markets are (still) very regulated and call for local knowledge on the part of service providers. Specialization is a vital aspect, trumping scale.

3. Everything As-a-Service

The best type of contract shows this paradox; the situation calls for long-term solutions and long-term partnerships. And at the same time, it calls for agility because the world around us is highly volatile. So 5- or 10-year deals are less likely. This presents a tension between service buyer and service provider. Especially if there is a need for mutual investment. Service providers' propositions need to incorporate flexibility and long-term mutual commitment. The As-a-service Economy is a Collaborative Economy.

As-a-Service cloud-based solution and process delivery are the next logical step for service providers and energy firms operating in these markets. Low initial investment requirements fit the capital constraints and need for flexibility. Technology-driven business models will be at the core of the future state of business transformations. Enterprise services buyers may need different capabilities tomorrow. The agility and partnerships of service providers are paramount in this context. Innovation and execution are equally important aspects of the service providers' capabilities.

The Bottom Line: Energy consumers need to change, one way or the other and they need producers to facilitate the change

Climate change affects us all. If we want to do something, the old ways are not sufficient to address the problem. We need to be more careful with energy consumption. We need new energy sources at scale. We have to invest in countering climate change. This will be something that comes naturally to future generations. Like digital natives, there will be sustainable natives. But we are in an era of transition that will ask for sacrifices from us non-sustainable natives.

Governments, NGO's, and all actors in the entire energy value chain are on the brink of a significant shift. They are tasked to find answers to the challenges of climate change and the Paris climate deal. Consumers need to change, one way or the other. They need producers to (co-)facilitate the change. Consumers need better customer experiences; they need more services that enable them to change behavior. Energy producers need to transform the infrastructures they have relied on for decades. Energy retailers need to connect with the consumers and become energy transition partners. And they need help. Service providers need to become part of this energy transition partnership, enable their customers' customers. Design Thinking is an excellent methodology and practice to reimagine the experiences, products, services and processes energy consumers expect now and in the future. The As-a-Service Economy has arrived in the services world and holds the potential to play a critical role in the energy transition.

There is an enormous opportunity for technology and business service providers to become part of the solution. This requires investment from both sides, real partnerships and the application of leading-edge technologies: intelligent automation, IoT ecosystems, actionable data and analytics are essential ingredients of digital transformations designed to push energy providers forward on the energy transition journey.

HfS will cover the various markets that make up the energy ecosystem in detail in future research. We will look at business model innovation, new technology driven market entrants, how emerging technologies enable energy providers to cope with the challenges of energy transition. We will apply the As-a-Service Economy ideals to energy, utilities and resources industries and the service providers serving the market.

The world needs energy in the future, even more than we need now. The question is who will be the energy providers that fit the new job description.

About the Author

Derk Erbé

Derk Erbé is Managing Director Research at HfS Research. Erbé is responsible for a compelling, leading-edge research agenda covering the core topics of interest for buyer and vendor communities in the areas of digital business transformation services and business operations, with a specific emphasis on key vertical markets, namely Energy, Utilities and Resource Industries.

He works with the HfS research team on key research areas that are impacting HfS clients, such as automation, SaaS and workforce transformation.

Derk is responsible for Custom Research at HfS, working across the commercial and analyst team and client organizations developing and executing research deliverables.

Derk has a keen interest in Business Transformations, new business models, Digital, Mobile and IoT from a technology and change management perspective.

Most recently, Derk was Co-Founder and CEO of Kea Company. He held several roles at Kea Company, serving as EVP Strategy and leading business advisory and consultancy. He was part of the team behind the annual global Analyst Relations Forum.

Throughout his career Erbé had a wide variety of leadership, consultancy and advisory roles with emphasis on business processes, operations, enterprise architecture, change management and crisis management. He was a management consultant and interim manager at energy companies like RWE/Essent and a natural gas giant, NGO's, government agencies, tech startups, large technology vendors and service providers.

Derk is known for his ability to rapidly distill the top priorities in difficult circumstances and fluid, complex situations and executing on these priorities with his "getting things done" mentality.

Derk holds a Masters of Science in Sociology from the University of Amsterdam. If he is not cooking up plans for clients he likes to be in an actual kitchen. With a curious mind, he likes to get his head around complex stuff. When the realization sank in his talent and height weren't leading to the NBA he became a passive basketball connoisseur.

When Derk is not travelling, business or pleasure, he resides near Amsterdam, the Netherlands with his wife and two little sons.

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About HfS Research

We coined the As-a-Service Economy term because we see a profound change under way that is more all encompassing than a simple business model or product line. It's a global shift that will leave few sectors of business or society untouched.

To help our clients and the market get to the As-a-Service Economy, we serve the strategy needs of business operations and IT leaders across finance, supply chain, human resources, marketing, and core industry functions in organizations around the world. HfS provides insightful and meaningful analyst coverage of best business practices and innovations that impact successful business outcomes, such as the digital transformation of operations, cloud-based business platforms, services talent development strategies, process automation and outsourcing, mobility, analytics and social collaboration. HfS applies its acclaimed Blueprint Methodology to evaluate the performance of service and technology in terms of innovating and executing against those business outcomes.

HfS educates and facilitates discussions among the world's largest knowledge community of enterprise services professionals, currently comprising 100,000+ subscribers and members. HfS Research facilitates the HfS Sourcing Executive Council, the acclaimed elite group of sourcing practitioners from leading organizations that meets bi-annually to share the future direction of the global services industry and to discuss the future enterprise operations framework. HfS provides sourcing executive council members with the HfS Governance Academy and Certification Program to help its clients improve the governance of their global business services and vendor relationships.

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