Plug in
EY’s latest insights for Power & Utilities
Africa is now one of the world’s top energy investment destinations, driven by growing demand, market reforms and a huge need for infrastructure. The continent will need 250GW of additional generation capacity by 2030, opening up huge opportunities, particularly in the sub-Saharan.

Get ready for reporting changes
The latest round of IFRS changes will mean utilities must reconsider how they prepare their next financial statements. This article gives a snapshot of the key issues and how companies should prepare for them.

Securing information against cyber attacks
Cybersecurity attacks are increasing in number and sophistication every single day. But our latest global information security survey shows most companies are moving too slowly to improve their defenses. Utilities must act now to improve, expand and innovate their approach to enterprise-wide security risk management.

Risk-based asset replacement
Living on borrowed time? US utilities must fast-track the replacement of ageing assets to avoid almost certain catastrophic failure. Taking a risk-based approach is key to building a compelling case for investment.

Rush to renewables in Indias
India’s huge need for power is the primary driver of its renewable energy sector, which is boosted by government support and a thriving wind power industry. But despite growth, much of India’s renewable energy potential remains untapped. We outline the key barriers to attracting much-needed investment.

The capability crunch
Today’s skills shortage in the power and utilities sector is unprecedented, says Benoit Laclau, EY’s Global Advisory Power & Utilities Leader. Read Benoit’s point of view on the “capability crunch” that threatens to increase costs, delay projects and hamper efforts to cut carbon.

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Rethinking service costs
Utilities in the US face a volatile future and must make sustainable cost savings – but where to start? Service company costs could be a good place to begin as, in some cases, these costs are growing more than twice as fast as operational expenses.

The dawn of Japan’s energy future
Japan’s energy reforms aim to balance the country’s power supply and demand in a post-earthquake world. The challenge for Japanese utilities is unprecedented – they must completely rethink their operations and develop a new competitive mindset.

Take the COO challenge
Is the COO role the most challenging in power and utilities? In our experience, outstanding COOs are taking three core actions to ensure their companies are ready for the greatest transformation in the sector’s history.

Africa’s smart future
Smart meters could solve many of Africa’s energy dilemmas and help deliver economic growth, education and health to the continent. But rolling out meters in this challenging environment is not for the faint-hearted. An EY project in South Africa is tackling the key difficulties and could influence the evolution of Africa’s smart future.

Evolving identity and access management
Many power and utility companies are stuck at a low level of IAM maturity and missing opportunities to gain efficiencies, cut costs and reduce fraud. Lessons learned from other industries can help utilities keep pace with IT trends and changing business needs.
The capability crunch

Will a skills shortage threaten the power and utilities (P&U) sector’s “smart” transformation? How can utilities ensure they have the right people in place at the right time? Benoit Laclau, EY’s Global Advisory Power & Utilities Leader, shares his views on this critical issue.

Benoit Laclau says that the P&U sector is in the midst of “probably the biggest change ever to affect the entire industry,” as huge projects driven by the smart transformation get underway across the world.

As investment surges, so too does the demand for workers — the P&U sector is creating high-quality jobs at a time when other sectors are struggling.

“When the UK was in recession between 2008 and 2010, the energy industry was one of the few to create employment over that same period,” Benoit points out.

“And now the new nuclear plant at Hinkley Point C will create tens of thousands of enduring jobs over the next few years.”

While a booming industry is positive news, it comes with a catch. Benoit warns that the demand for skilled workers is creating a “capability crunch,” which, if not managed carefully, may cause cost blow-outs, project delays and threaten decarbonization targets.

Skills gap across all areas, roles

Benoit has more than 15 years’ experience in P&U, and, before joining EY, was in charge of business improvement and transformation for French utility EDF. He says that while the sector has seen skill gaps before, the scale and complexity of today’s shortages are unprecedented and compounded by an aging workforce.

“We are seeing a lack of capacity across all areas and across all types of jobs – IT, customer services, field forces and even with the IT and business consultants.”

He says the first challenge is the sheer size of the projects, particularly the smart meter rollout.

“Utilities are used to replacing meters every 15 to 20 years, and their workforce is designed around this. Now they must roll out meters within a period of about five to eight years – meaning they need three to four times as many resources to do it.”

The second challenge, says Benoit, is the complexity of what is required.

“Unlike traditional meters, smart meters must be connected within the house to many devices, the gas, electricity and to the back-end billing systems. And that back end, depending on the countries, is a set of centralized and decentralized communication and billing systems.

“This more complex technology and the shorter life expectancy of smart meters will have an impact on the replacement frequency and associated human efforts required.”

“There is also a need for people to work on the infrastructure behind this new technology, and manage the deployment of many, many millions of meters. This means that the IT function of utilities will need to do more regarding security, managing data, communications and so on.”

Operating in an “ecosystem”

Just as the causes of the capability crunch are complex, so too are its potential solutions.

“The biggest message is that partnering with a single partner organization – traditionally, systems integrators – to help solve the smart metering skills problems doesn’t work anymore,” says Benoit.

“Instead, we are seeing new models evolving that are like ecosystems. For example, smart meter projects are made up of three, four, five, even ten organizations that are working towards achieving the goal for their customers.
These organizations may include those that manufacture meters, transport them, install them, train the workforce and manage the systems used to deploy and use the data they generate.”

Benoit says that while this model is an efficient way to find the right resources “wherever they may be in the market,” it is more complicated.

“Utilities now have to manage multiple relationships, as opposed to just one. At EY, we are working with clients to take away some of that complexity, by managing the ecosystem and moving people between geographies according to our client’s needs while reusing expertise.”

“For example, the UK has been deploying smart meters for two or three years, while Germany is about to get started. It may be that when the UK is well advanced into its deployment, much of the rollout in Germany will take place. So that’s a perfect example as to how we can move people between two countries.”

**Recreate the consumer relationship**

But despite the pressure on resources, Benoit says the opportunities of the smart transformation are significant.

“At last, utilities have access to real-time data. They are becoming a bit more like telecom organizations. They will know what the customer consumes and start to understand them better. So this data will open up many possibilities for utilities as far as offers and promotions for consumers.”

It is, he says, an opportunity to “recreate the relationship between the energy company and the consumers” in a way that can help address the sector’s priorities.

“Smart metering connects the consumer to their energy usage, helping them consume less. And if you think about the three key issues of the energy industry: affordability, sustainability – making sure that we don’t destroy the planet – and security of supply – that when we press the switch, the light comes on – all of these will be addressed through smart metering.”

“And that’s probably the part I find most interesting. Smart metering is, for the first time, doing something about helping people not to consume as much and, in this way, actually addressing the big issues of our sector.”

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**Benoit Laclau**

Global Advisory Power & Utilities Leader
blaclau@uk.ey.com
+44 20 7951 8453
@BenoitLaclau

Benoit is EY’s Global Advisory Power & Utilities Leader, leading our work on key P&U accounts. He has advised many CIOs on IT strategy, operating models, organization and business transformation over the past 20 years. Before joining EY, Benoit was the CIO of one of the UK’s largest P&U organizations. He was also responsible for consolidating and transforming three IT organizations into one and significantly reducing costs while improving internal customer and employee satisfaction.
Rush to renewables in India

Is renewable energy the answer to India’s rising demand for power? The potential is tremendous, but policy uncertainty and the high price of capital may thwart growth. Sanjay Chakrabarti reports.

India’s energy sector is on the move, with power capacity and demand rising fast. Driven by urbanization and a growing middle class, the country is now fourth on the list of the world’s top energy consumers.

This huge need for power is the primary driver of India’s renewable energy sector, which is also being boosted by strong Government support and the country’s strong wind power industry (currently the world’s fifth largest). But while FY13 saw power generation from renewable sources soar to 12.3% of the country’s total energy mix (up from 7.8% five years ago), much of India’s renewable energy potential remains untapped.

Untapped potential

In many ways, India is a country made for renewable energy. With almost endless sun and vast land, the nation boasts abundant untapped renewable energy resources and significant potential to produce energy from biomass derived from agricultural and forestry residues.

Key policy initiatives

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<td>▶ Launch of the NAPCC</td>
<td>▶ GBI scheme for wind energy</td>
<td>▶ Notification of solar-specific RPOs</td>
<td>▶ National Electric Mobility Mission Plan 2020 launched</td>
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<td>▶ State-specific feed-in-tariffs (FITs) for wind energy</td>
<td>▶ Solar policies/tariffs announced by several states/SERCs</td>
<td>▶ Formulation of national clean energy fund (NCEF)</td>
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<td>▶ Notification of renewable purchase obligations (RPOs)</td>
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<td>▶ Launch of renewable energy certificates (RECs)</td>
<td>▶ Establishment of Central Financial Assistance (CFA) to set up small/micro hydropower projects</td>
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<td>▶ Launch of a smart-grid task force</td>
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<td>▶ GBI reinstated in FY13 after it lapsed at the end of FY12</td>
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Source: EY analysis
The ability of renewable energy to be scaled up and down and distributed widely, without the need for big grids, also makes it well suited to India. Its large population is spread widely throughout the country, and many people are located in remote areas that lack the critical infrastructure needed to deliver conventional power. Increased use of renewables also offers India the opportunity to reduce its dependence on expensive imported fossil fuels, improve energy security and meet climate change goals.

The potential of India's renewable energy market is boosted by strong Government support and incentives and a liberal approach to foreign direct investment (FDI).

Wind still dominates, solar set to shine

Wind energy contributes about 19GW of India's installed capacity, making it the overwhelmingly dominant renewable energy source. Small hydropower contributes 3.6GW, as does bio energy — although ambitious targets aim for 10GW capacity from biomass by 2020. Solar adds 2GW of installed capacity.

But while it may lag far behind wind, solar is emerging as the shining star of India's renewable energy segment, boosted by strong Government support, which has set targets to install 9GW of solar power by 2017.

The capital crunch

This regulatory uncertainty is a key challenge for the sector. India has a policy of renewable purchase obligation, wherein specific segments of energy consumers are mandated to source a set percentage of the energy through renewable sources. While the announcement of this policy was hailed as a tipping point for the Indian renewable energy sector, the policy has yet to be enforced.

Some Indian regions have recently altered capacity targets during projects' bidding processes, while others have reduced tariffs and changed deadlines for submissions. These sudden shifts are discouraging for investors, especially those developers and suppliers who had already invested based on original proposal processes.

Another big challenge is a lack of the infrastructure needed to connect power generated from renewable energy to the power grid.

But perhaps the single biggest threat to growth in India's renewable energy market is the high cost of capital. India's higher interest rates, the falling value of the rupee and short-term lending rates have caused the cost of capital to soar to 13% or more (compared to about 6% in other markets), making Indian renewable projects extremely expensive. A recently announced Government policy that allows solar projects to receive direct grants covering as much as 40% of the upfront cost of building projects will help, but the high cost of capital will continue to be a problem with no easy answers.

Local insights key to success

A country as hungry for energy as India has little choice but to embrace renewables. With abundant natural resources and a supportive Government, the nation's renewable energy market looks primed for success. But to truly reach its growth potential, India must do more to stabilize the regulatory environment and offer certainty around its energy policy framework. The high cost of capital will also remain a challenge for the foreseeable future though increased FDI may help to bring it down. For those keen to invest in India's energy sector, partnering with local advisers who understand the complexities of India's energy regulators, tax laws and utilities sector will be a critical success factor.
Risk-based asset replacement

North American utilities are being encouraged to think beyond compliance when planning for critical asset replacement. Taking a risk-based approach increases the likelihood of successful rate case applications while avoiding catastrophic asset failure. Matt Chambers reports.

For many North American utilities, it has been half a century since their massive postwar capital investment programs. Now, many of these critical assets — electric grids, natural gas pipelines and water distribution systems — require urgent replacement to maintain safety and reliability.

According to the Department of Energy, power outages cost the US approximately US$80b annually while the financial consequences of catastrophic failure can threaten a utility's viability. Given the significance of this risk, utilities must supplement their traditional reliability-centered maintenance programs with two parallel activities:

1. A regulatory-accelerated replacement strategy
2. An operational risk management framework

Building a compelling case for investment

A regulatory-accelerated replacement strategy focuses on accelerating and prioritizing replacement and financial recovery, compressing what may have been a 50-year asset replacement plan into a much shorter period of, for example, 10 or 15 years.

Although fast-tracking asset replacement is essential to avoid failure of aging infrastructure, it also requires a far greater investment of funds. Utilities must build compelling, risk-based rate cases that assure regulators that this increased infrastructure investment aligns with the public’s need for reliable energy supply.

We believe that many regulators are aware of this pressing need for investment. But, wary of burdening consumers with continual rate increases, they are increasingly encouraging companies to present evidence of the investment need in order to justify costs that will be passed on to ratepayers.

The California Public Utility Commission (CPUC) recently proposed new rules that would compel utilities to base future rate case applications on a risk-based decision-making framework. The CPUC said it “expect[s] an evolution in the way utilities identify safety and reliability risks and justify the value of investments and operations expenses.” However it is worth noting that many regulators, including the CPUC, have yet to update cost recovery mechanisms in line with this risk-based approach (see inset box).

This evolution requires utilities to build a compelling case for investment by articulating their risk profile and creating awareness of the risks and mitigation plans. We are working with many companies to develop critical asset risk and investment plans that use both the current risk profile and proposed risk profile that would result from the replacement program to quantify the potential financial consequences of a potential asset failure.

Using data analytics to improve operations

In addition to prioritizing asset replacement, utilities need better ways to manage the short-term operational risk associated with aging assets. Most companies have an effective operational management framework in place, but in many cases, this framework includes inadequate monitoring and reporting mechanisms to alert management to signs of potential asset failure.

Given the significance of the risks, warning signs of potential failure must go beyond frontline operational staff. Executive management needs a clear line of sight into operational decisions to enable proactive decision-making when it comes to failing assets. Embedding advanced data analytics into existing enterprise asset management (EAM) systems allows for greater transparency and improved reporting. This means utilities can understand not only what has already occurred, but also why it happened and what may be lurking around the next corner.

Living on borrowed time

Utilities, and society at large, are living on borrowed time. The economic and public impact of a single, major infrastructure failure far exceeds the positive returns that risky assets left in the ground stand to provide. While reliability-centered maintenance programs remain important, utilities will also need to adopt a multifaceted solution that considers regulatory-accelerated replacement and operational risk. Most importantly, avoiding catastrophic asset failure will require companies to view asset replacement programs through a risk lens that enables proactive, long-term decision-making, rather than one that focuses only on compliance.

Lessons from San Bruno

PG&E’s risk-based replacement strategy

Californian utility Pacific Gas & Electric (PG&E) – owner of the San Bruno gas pipeline that exploded in 2010 – recently conducted risk assessment that led to changes in the company’s planned investment priorities in order to improve safety by optimizing risk reduction.

Announced on 30 October 2013 as part of the company’s third-quarter financial earnings, the utility announced plans to replace fewer miles of natural gas pipelines than originally proposed, although the difficult terrain in which these miles are located means the costs to replace them will be comparable. But with CPUC’s cost recovery mechanism based on number of miles, rather than the cost of replacement, PG&E stated that the work would leave it with unrecoverable expenses of about US$196m (with additional costs of US$30m in 2014).

This highlights the need to educate regulators as to the true cost of replacing infrastructure and putting legislative measures in place to ensure utilities do not bear all the expenses of a risk-based replacement strategy.

Matt Chambers
Principal, Houston
Ernst & Young LLP
matt.chambers@ey.com
+1 713 750 5944

Matt is a Principal in Ernst & Young LLP’s Advisory practice with almost 20 years of experience assisting clients with improving their risk management infrastructure. He leads the US firm’s performance risk management activities in the power and utilities sector and works with a number of energy clients in designing and implementing policies, processes and technology to manage the significant strategic and operational risks that impact long-term goals.

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Securing utilities against cyber attacks

Big data = big risks? As power and utility (P&U) companies receive more information, they are almost certain to fall prey to cyber attacks – with potentially catastrophic consequences. Fraser Nicol reports.

Information security is increasingly a concern for utilities as they face a flood of data from customers, smart meters, operational assets and the power grid. EY’s recent Global Information Security Survey highlights key information security issues for the industry and the steps that leading utilities are taking to mitigate the risk of cyber attacks.

Biggest risks from external attack

Technology and data have completely transformed the power and utilities sector, allowing companies to use information to improve and expand services, and better engage with customers. However, big data also brings added regulatory obligations around privacy and security – and the risk that sensitive data will be subject to increasingly sophisticated cyber attacks.

Most utilities recognize the information security risks they face. Eighty percent of respondents in the sector reported an increase in external threats, with mobile computing, malware and phishing the most prevalent concerns.

But while they may recognize the threats, it seems few utilities are ready for them: only 11% of survey respondents said they felt their current information security measures fully meet their organization’s needs, 60% are running no or informal threat assessments while 64% believe that their security strategy is not aligned with today’s risk environment.

Improve, expand, innovate

As attacks grow in sophistication, IT infrastructure becomes more complex and the value of data increases, utilities’ security teams are under more pressure than ever. Senior executives must act now to:

1. Improve: become aware of the current cyber risks facing their organization, and be satisfied that the people tasked with managing these risks have the tools, time and access to expertise they need to do this effectively. Despite cyber risks being seen as potential “show stoppers” for many P&U businesses, our survey found that only 15% of senior management responsible for cyber security have direct reporting lines into the board.

2. Expand: cyber security is a business issue, not an IT topic. When IT and security professionals seek to address cyber security across the enterprise, they are often impeded by weak organizational governance.

3. Innovate: P&U companies that aspire to use developments such as smart metering to become service provision innovators must continuously review, rethink and potentially redesign their entire information security framework to ensure that the new services they provide are done so in a secure manner. This may require a fundamental transformation of their information security program to proactively fortify against both the known and the unknown risks in the cyber risk environment.
Take a proactive approach

As utilities improve, expand and innovate, they are investing significant resources in information security. Almost a third of respondents from the power and utilities sector said they spend more than US$3m per year on the function, while about half of all utilities respondents say that their information security budget will increase in 2014.

But while utilities are spending big, in many cases their investment in information security remains ad hoc and too focused on IT. Organizations should place more emphasis on improving employee awareness of cyber security – 34% of P&U companies said they were only at a 1 or 2 on a 1 to 5 maturity scale. Security governance and management is also a concern with 36% of sector respondents also rating this as only a 1 or 2.

These weaknesses are worrying because the effective management of customer data and the reduction of cyber risk both rely on the active support and engagement of non-IT business users. Weaknesses in training and awareness, or approaches to security governance and management that are limited to IT, make it difficult for companies to successfully respond to cyber and privacy threats.

EY is supporting many utilities through this process of integrating their information security into their overall business strategy. Key areas of support are:

- Strengthening security awareness and training, ensuring staff members from across the business receive the guidance they need to recognize and address potential threats, particularly regarding mobile computing, malware and phishing.
- Assessing their security architecture to ensure its design, size and operations are suitable for the entire enterprise.
- Integrating information received from external sources into an enterprise-wide security risk management approach.

Act now

As cyber security threats gather pace, leaders in P&U organizations must step up their efforts to improve their information security programs. A more proactive approach, greater employee awareness, innovative security solutions and an integrated information security program will enhance a company’s defenses against inevitable cyber attacks and protect it from potential reputational damage, regulatory action and higher costs. Leading organizations know that cyber attacks will only increase – the time to act is now.

Fraser Nicol
Director, Information Security Advisory
fnicol@uk.ey.com
+44 777 604 7344
@FraserNicol4

Fraser is part of EY’s UK Information Security team. He has more than 14 years’ experience in information security and has worked across the government and energy sectors, focusing on security within large-scale transformation programs. The provision of effective security over smart metering programs within the UK is a current area of focus.
Financial reporting plays a key role in providing transparency on the long-term impact of utilities’ business decisions and accountability for those decisions. IFRS 10 and 11, which were effective 1 January 2013, could have a big impact on how power and utility (P&U) companies present investees in their financial statements.

IFRS 10: Consolidated Financial Statements

What is changing? Group structure, including interest in structured entities.

How could it impact financial statements? A new and broader definition of “control” may result in changes to a consolidated group.

What will it mean for utilities? Companies will need to evaluate whether they have the ability to use their power to affect the returns from their involvement with the investee. Additional considerations will be needed when control is not clearly held through voting rights. The change will be particularly relevant to a P&U vehicle’s investments in power generators, transmission and distribution companies and renewable energy projects. It is an area where careful judgment will need to be exercised – there are no “bright lines” – and the issue of whether control is held must be regularly reassessed to ensure continued compliance with financial reporting regulations.

IFRS 11: Joint Arrangements


How could it impact financial statements? There will be considerable changes for vehicles that applied the proportionate consolidation method to arrangements previously classified as jointly controlled vehicles.

What will it mean for utilities? This is perhaps the biggest change to P&U companies’ financial reporting, due to the extensive joint arrangements that exist in the sector. For example, a wind farm project may involve several power generators.

Under IFRS 11, utilities must assess whether joint control exists, and then evaluate the arrangement’s legal structure, contractual terms and other facts and circumstances to determine whether a joint arrangement is classified as a “joint venture” or a “joint operation.” A joint venture classification results in equity method accounting, while a joint operation classification would result in the vehicle recognizing its share of the arrangement’s assets, liabilities, revenues and expenses. As with IFRS 10, definitive answers are hard to find but the process may start by identifying all joint arrangements and assessing whether each arrangement is structured through a separate vehicle – if

1. IFRS defines a vehicle as: “A separately identifiable financial structure, including separate legal entities or entities recognised by statute, regardless of whether those entities have a legal personality;” Examples of vehicles found in the utilities sector include partnerships (both general and limited), unincorporated entities, limited companies and unlimited liability companies.
not, it will be considered a joint operation. However, further analysis is necessary if an arrangement is in a separate vehicle. For example, we have seen the terms of a joint arrangement structured through a separate vehicle require the parties to purchase all of the output at prices that will ensure the arrangement covers its costs.

By default, the parties are responsible for the liabilities of the arrangement, despite the fact that it is legally structured as a separate vehicle, which may result in the arrangement being considered a joint operation. Contracts will need to be examined carefully and discussions should include all participants in the joint arrangement.

Understand the impact

While IFRS 10 and 11 are not the only changes to IFRS – more information on other amendments can be found in the latest issue of Reporting – it is these that warrant particular attention from P&U companies. As joint arrangements become increasingly common in the sector, as a means to share risks, costs and enter new markets, it is critical that the specific facts and circumstances of each arrangement be evaluated to determine the appropriate accounting. Utilities must understand the changes, assess how they impact their own situation and exercise careful judgment – often with the help of external advisors – to apply them successfully.

When are these changes effective?

These IFRS changes will need to be reflected in the 31 December 2013 financial statements.

How we can help

EY provides up-to-date knowledge and insights to help P&U companies deal with the widespread implications of IFRS. Our business-based approach helps utilities manage both financial accounting and reporting issues while understanding how IFRS affects critical decisions.

Dennis Deutmeyer
Global IFRS Power & Utilities Leader
dennis.deutmeyer@ey.com
+44 20 7951 2947

Dennis has 26 years’ audit and assurance experience with multinational clients across a range of industries. As Global IFRS Power & Utilities Leader, he monitors the impact of new and updated accounting standards and develops practical, technically sound approaches for our clients.
Africa’s time to shine

Africa is poised for high growth amid rising energy demand, market reforms, and commitment to develop power and logistics infrastructure. Opportunities for utilities are significant, particularly in the sub-Saharan region. Brunhilde Barnard and Matt Rennie report.

Growing energy demand, regulatory and social reforms, and infrastructure investment have seen Africa become one of the world’s top energy investment destinations. Capital allocated to infrastructure projects reached more than US$700b by the end of 2012, with the power sector accounting for 24.9%, or US$176b, of this investment.\(^1\)

Our recent Africa Attractiveness Survey revealed that those respondents already doing business on the continent cited “improving transport, power and logistics infrastructure” as the single biggest factor for dealing with and enhancing the ease of doing business.

Renewables a focus

The high growth in renewable-energy development in the sub-Saharan region is a key target for private and foreign players attracted by long-term growth prospects in wind, solar and geothermal projects. Hydroelectric power generation offers vast and relatively untapped potential.

In 2012, South Africa secured the largest share of the region’s clean energy investment – US$5.7b – with Kenya and Morocco receiving US$2.9b between them.\(^2\) Other countries such as Ghana are attracting investors through incentives such as feed-in tariff mechanisms and assurance of grid connection for renewable energy projects.

Seek local partnerships

Partnerships are key to success in Africa. This was highlighted during Nigeria’s recent US$2.5b privatization process where local firms – in consortia with foreign players including Siemens, Manila Electric, Symbion Power and KEPCO – emerged as winners of most projects.\(^3\) As the country moves to privatize 10 gas-fired power plants, expect to see more foreign investors on the lookout for M&A opportunities.

Companies including General Electric, Sinohydro Corporation, and South Korean High Quality and Marketing Company have also announced long-term greenfield investment plans for Nigeria.

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\(^1\) Africa attractiveness survey 2013, EY, 2013.


\(^3\) “Nigerian power facilities turn private,” Financial Times, 30 September 2013; “Korean firm to inject $30b into Nigerian power sector,” The Nation, 1 June 2013.
depend upon strengthening partnerships across government, private businesses and communities, especially in robust long-term planning of public-private partnership (PPP) projects. A key starting point is to identify projects that meet the PPP criteria and offer long-term stable cash flows and the right local partners to execute the projects. Project financing is still at a nascent stage in Africa, and it may take time for the sector to evolve. But, despite its challenges, a higher-than-global-average rate of economic growth and sweeping regulatory reforms mean we expect Africa’s utilities sector to emerge as an investment destination of choice.

While the long-term viability of these projects has yet to be seen – at least one-third of Africa’s power projects are still in the conceptual stages, while half of all capital is also locked in the planning stages – we expect companies with strong capex management programs and thorough due diligence to do well.

China dominates

The importance of partnerships is also reflected in China’s dominance of African inbound foreign direct investment. China is Africa’s single largest country trading partner, while Africa is a major import source for China and, significantly, the second-largest market for Chinese overseas construction project contracts. Other major economies, including the US, Japan and India, have gained substantial interests in the resource-rich continent, especially in manufacturing, resource and infrastructure activities. Japan recently pledged US$2b for direct loans, underwriting debt and equity stakes in projects covering crude oil, natural gas, coal and minerals over next five years. The US has committed more than US$7b of public funds in Africa over the same period, while the US private sector has pledged another US$9b to help develop an initial 10GW of new electricity generation in the sub-Saharan region.

Target of 250GW by 2030

It is estimated that Africa will need 250GW of additional generation capacity by 2030. While this translates into significant opportunities for foreign and domestic industry players, success will depend upon strengthening partnerships across government, private businesses and communities, especially in robust long-term planning of public-private partnership (PPP) projects. A key starting point is to identify projects that meet the PPP criteria and offer long-term stable cash flows and the right local partners to execute the projects. Project financing is still at a nascent stage in Africa, and it may take time for the sector to evolve. But, despite its challenges, a higher-than-global-average rate of economic growth and sweeping regulatory reforms mean we expect Africa’s utilities sector to emerge as an investment destination of choice.

For on-the-ground insights in Africa, please contact Brunhilde Barnard, Africa TAS Leader at brunhilde.barnard@za.ey.com

Brunhilde Barnard
Africa Transactions Power & Utilities Leader
brunhilde.barnard@za.ey.com
+27 797 727 536

Brunhilde leads EY’s Transaction Advisory Services Power and Utilities practice in sub-Saharan Africa. Brunhilde, a chartered accountant, has a focus in public sector and utility advisory work, and she has advised clients in Namibia, Malawi, Botswana, Guinea and South Africa.

Matt Rennie
Global Transactions Power & Utilities Leader
matthew.rennie@au.ey.com
+61 7 3011 3239
@MattRennie_EY

Matt is Global Transactions leader for Power and Utilities and also leads EY’s Power and Utilities business in Oceania. He is responsible for coordinating strategy and business development across the service lines of Advisory, Tax, Assurance and Transaction Advisory Services in Australia, and for the various service offerings of the Power and Utilities transactions business globally. He is an economist and an adviser on regulatory, commercial and pricing matters to debt and equity participants and governments in the energy, water and gas infrastructure sectors.

US power and utility (P&U) companies are facing a volatile future: revenues are weak but investment needs are significant and operating expenses are escalating fast. As regulators scrutinize allowed returns on equity (ROEs) and grow wary of granting rate increases, companies are faced with a stark choice: cut costs and avoid rate cases or sacrifice earnings. But where to begin?

Service company costs – for functions including finance, insurance, IT, supply chain, accounting, legal and HR – are a good place to start. For some utilities, these costs are increasing two to three times as quickly as field operations and maintenance expenses. And while many of our US P&U clients have already completed one or two waves of cost takeouts in their core service functions – without loss of productivity or business risks – we believe it is time for systemic change in the way these services are delivered.

If you can’t see it, you can’t cut it

In the past, service company costs for support services were allocated across an energy utility’s business lines in a one-size-fits-all manner, resulting in a lack of transparency between general and administrative costs and end product prices, costs and profitability. These services have not been line of sight with customer rates or market prices – making them difficult to predict and even harder to control. In many cases, hard targets for service company costs in the context of end-use markets are completely absent. For example, there is a lack of consideration about how services and costs should differ for a merchant power plant compared to that for a regulated distribution region.

Here comes the next generation

Building a next-generation support services model will require P&U companies to develop a more tailored understanding of their cost profile, allowing them to view expenses at a new level of granularity, and take a disciplined approach to cutting excess.

Here are five ways to move forward:

1. **Segment the service company.** Leading service organizations are aligning service company costs to business segments and profits, taking a hard look at their cost allocation pools in order to scale back, outsource or eliminate those corporate services they cannot afford. For example, as generators shutter...
coal plants, what is the corresponding impact on shared services? As rate case increases are denied, what is the balance between reductions in the field versus the corporate center? In a low natural gas market, what is the overhead level or bearable burden that fossil fleets can handle?

2. Enhance the line of sight between product and service costs. We are working with clients to link service costs more directly to outputs – for example, how much cost is being allocated per customer, kilowatt-hour or megawatts of capacity? What is this allocation for IT, HR, accounting and legal services? What is the ratio of “line” to “staff” employees? This type of transparency reveals how big service company allocations are, how fast they are growing - and where cuts are needed.

3. Embrace outsourcing and scale economies. An increasing number of our clients are turning to innovative third-party providers, often offshore, in countries such as India, to take on non-operational tasks – and complete them in a more efficient way, at lower cost. The market for many functions, such as payroll, audit services or HR information systems, is mature, and the solutions proven.

4. Revitalize the organizational structure. As promotions are granted, experienced senior management can end up in holding tanks for managers who don’t manage – becoming essentially high-paid subject matter experts. One way to address this is to redesign the management structure so that talent moves consistently toward the top – adopting more of an “up or out” structure coupled with fewer levels and broader spans of control to ensure that management jobs are truly value for money. Some expensive senior managers should be viewed as candidates for outsourcing; it is more efficient to bring in this talent as needed than employ people full-time.

5. Review “uncontrollable” costs. Companies are taking another look at what were previously considered “uncontrollable” costs. We are seeing many of our clients put a new focus on wellness measures, such as regular health checks and workout facilities, to take charge of preventative health care. Ultimately, we believe that employees who choose to live what are considered unhealthy lifestyles will be required to pay a larger share of their health care expenses.

Talk tough

Shifting their approach to service costs can not only help utilities achieve significant and sustainable cost reductions but also, through reviewing practices, inject innovation and a fresh perspective into the business. While cost optimization is now firmly embedded in the internal culture of most energy utilities, there is some reticence to engage in the necessary dialogue regarding service functions and their delivery models. Direct conversations are essential to successfully rebuild the service company model and achieve cost reduction while sustaining support levels and quality.

Andrew Patterson
Principal
andy.patterson@ey.com
+1 614 232 7980

Andy has worked in the power and utilities sector for more than 25 years and has extensive experience with programs and processes used to oversee large-scale, energy utility cost containment programs. His focus is on strategic and business planning, operations effectiveness, performance improvement, and pre- and post-merger work.

How we can help

In an increasingly complex environment, we are supporting leading utilities as they assess how operations, IT, finance, marketing and other critical business units are executing against their strategic objectives. We work with them to improve the effectiveness of business processes and organizational structures and achieve sustainable long-term value.
The dawn of Japan’s energy future

The proposed reform of Japan’s electricity industry promises to be one of the biggest ever seen by the global energy sector. What are the key challenges and opportunities for utilities? Shogo Sudo, Matt Rennie and Toshinori Ito report.

Japan is one of the world’s last industrialized nations to fully deregulate its electricity sector. The country’s 127 million people are currently served by 10 vertically integrated utilities, including Tokyo Electric Power Company and Kansai Electric Power Company, that each manage specific regional territories and, to add to the complexity, deliver power in two frequencies: 50Hz in the east and 60Hz in the west. While it is true that Japan’s power sector has experienced some previous attempts at deregulation, Japan’s 10 utilities still supply more than 90% of the country’s electricity. This latest round of reforms was triggered by what is referred to in Japan as the Great East Japan Earthquake of 2011. The earthquake — the most powerful ever to hit the country — highlighted the inflexibility of Japan’s regional electricity systems. No capacity to interconnect the region’s power supply meant some areas experienced an electricity surplus while others directly affected by the earthquake faced shortages.

The new reforms, driven by Prime Minister Shinzo Abe’s Government, will establish a national electricity grid to allow for a better balance of Japan’s power demand and supply and ensure energy security. The process will also expand the wholesale electricity trading market and introduce real-time pricing, which should also help balance supply and demand.

First changes set for 2015

In October 2013, legislation passed to set in place a three-stage reform process. The first crucial step establishes an independent system operator in 2015 that will control the electricity flow in a national grid. The second phase will remove the regional monopoly control of existing utilities, allowing for new market entrants and allowing consumers to choose their own providers. Finally, the third phase will abolish pricing regulations and compel utilities to unbundle their generation and transmission operations. The process is expected to be complete by 2020.

Understand implications of reform

It is difficult to overstate the sheer size and complexity of the challenges facing Japan’s utilities, which, in a relatively small amount of time, will need to develop and implement many new business processes and large-scale operational changes to fit the requirements of a deregulated industry.

For now, the priority is to thoroughly understand the reform process and what it will mean for each part of the business: generation, trading, transmission and distribution, metering, and retail. For the generation side, much will depend on the structure of Japan’s new wholesale energy trading market. Soon to be established by the Ministry of Energy, this market will have a huge impact on how power generation plants will operate in the future.

On the network side, preparing for deregulation will require utilities to focus on understanding how they will use an increasing flow of data to balance supply and demand and improve the stability and reliability of energy transmission and distribution.

The consumer is at the center of the changes occurring on the retail side. Utilities must focus their energies on understanding their customers better and putting customer-focused processes in place. Issues such as handling customer complaints, explaining contracts and ensuring processes are in place to manage customer switching all need to be mastered.
Bridge the capability gap

The experience of other countries proves that deregulation of the electricity sector is both a highly complex and time-consuming process. The task that Japan faces is exacerbated by the enormous size of its electricity system, its division in use of frequencies and large population. We are currently in talks with Japan’s leading utilities to help them meet these challenges, by first assessing their current capabilities, understanding those that will be required in the future – and deciding how best to bridge the gap.

Critically, adapting to an unbundled market will also require a fundamental cultural shift for Japanese utilities. Adopting a competitive mindset will ensure the best chance of success against new, nontraditional players attracted to the many opportunities of a liberalized Japanese energy sector.

Our teams can offer on-the-ground insights and local knowledge concerning Japan’s energy reforms as well as broad international experience gathered from the unbundling of other electricity markets. For a discussion about how we can help navigate the challenges and opportunities of Japan’s electricity sector, please contact us at sudoh-shg@shinnihon.or.jp

Shogo Sudo
Principal, IT Risk Advisory, Ernst & Young ShinNihon LLC
sudoh-shg@shinnihon.or.jp
+81 3 3503 2844

Shogo is Japan Advisory Leader for EY’s Power & Utilities team and also leads our Power & Utilities business in Japan. He is particularly knowledgeable about providing IT risk advisory services, including IT internal audit support, IT risk assessment, business and IT process improvement advisory, information security advisory, and IT due diligence.

Matt Rennie
Global Transactions Power & Utilities Leader
matthew.rennie@au.ey.com
+61 7 3011 3239

Matt is Global Transactions Leader for Power & Utilities and also leads EY’s Power & Utilities business in Oceania. He is responsible for coordinating strategy and business development across the service lines of Advisory, Tax, Assurance and Transaction Advisory Services in Australia and for the various service offerings of the Power & Utilities transactions business globally. He is an economist and an adviser on regulatory, commercial and pricing matters to debt and equity participants and governments in the energy, water and gas infrastructure sectors.

Toshinori Ito
Fellow, EY Institute Co., Ltd.
toshinori.ito@jp.ey.com
+81 3 3503 2512

Toshinori is President of Ito Research & Advisory Co., Ltd. and a visiting fellow at EY Institute. He is a leading professional in the energy industry in Japan and serves as a member of the country’s Expert Subcommittee on Electricity System Reform as well as several other Government panels. Before setting up his own business, Toshinori was a senior research analyst for UBS Securities in Tokyo and an analyst at HSBC Securities, and he worked at Daiwa Institute of Research.
In the P&U sector, an outstanding COO can make a significant difference to a company’s ability to successfully navigate challenging times. Our global experience of supporting COOs has helped us identify the three core actions being taken by the world’s leading P&U COOs as they respond to the sector’s rapid changes:

Core action 1: Broaden your view of the world

Leading COOs are changing their perspective. Gone are the days when the operational leaders of P&U could look just to the inner workings of their organization — now they must broaden their outlook and develop an external focus. The huge and rapid changes taking place in the P&U sector — including increasing regulations, the push for renewables, aging infrastructure and affordability pressures — mean COOs must now be acutely aware of the outside factors impacting their business and understand how these can best be addressed.

Outstanding COOs draw on their knowledge of these factors to make key decisions regarding their companies’ strategies to address sector changes. They also forge strong links with their compliance and legal teams, as well as those who lead on forecasting, simulation and modeling.

“To realize the peculiarities of it, you need to deeply understand the key issues of the industry and the piece of the value chain you’re operating in,” explains Luca Alippi, E.ON Energia’s General Manager. “We operate in a liberalized market, for example, but it is still highly regulated in many aspects: opportunities and challenges result, therefore, from both the market and the regulations.”

Core action 2: Be the “conscience” of the boardroom

More than any of their C-suite colleagues, COOs bring a broad overview of the business and a deeper understanding of how potential decisions could strengthen — or threaten — a utility’s ability to successfully adapt to changes. This allows COOs a rare opportunity to better define their role during strategic planning discussions, using their insights and deep knowledge of external factors to act as a kind of “conscience” for the boardroom, ensuring decisions are responsible and well-grounded. Making the most of this opportunity will require high-level skills and experience in formulating strategy, mapping key objectives, resources, initiatives and milestones, as well as financial savvy.

Core action 3: “Get smart” and design a customer-driven operating model

Outstanding P&U COOs are those adapting their operating model in response to two significant trends. The first of these is the emergence of today’s more empowered customers, who are demanding more from their utilities — expanded and improved services, transparent and competitive pricing, and the power to interact with their provider when and how they choose.

COOs must meet these needs and develop the customer-driven business model of the future. They will need knowledge of price strategies, how these might work in practice, when they are best deployed and how they ultimately relate back to the fundamentals of the business. They also must be able to review and analyze the growing volume of customer usage data and identify key trends.
Secondly, the smart transformation — including the smart-meter rollout and development of smart-grid infrastructure — will require both major technology investments and complex workforce management plans.

“It’s about finding the correct balance between the vision and the operating solution, and the ability to generate an operational basis that delivers on the vision,” explains Luca Valerio Camerano, the CEO of GDF Suez Energia.

Constant evolution

One of the greatest challenges facing P&U COOs today is the need to keep pace with rapid change. As Matt Idle, Customer Operations Director at British Gas, explains, “The COO role keeps growing, so my position is constantly evolving and building out.” Amid such challenging circumstances, understanding the mix of expertise and skills that make up an outstanding COO can help those in this important role deliver more value to utilities at a critical time.

Alain Bollack
Director, Global Power & Utilities
abollack@uk.ey.com
+44 20 7951 7147
@bollack

Alain is a director in Global Power & Utilities and is responsible for driving the global growth of our advisory business in the areas of smart metering and smart grid. Alain has almost 25 years’ experience supporting clients as they transform their business.

How we can help

The COO program seeks to provide insight and guidance on aspects of interest to COOs and future operations leaders. It aims to support them as they constantly adapt to a fast-changing corporate and economic environment – one in which they must possess a mastery of change to help translate strategic vision into action. To learn more, please visit ey.com/coo or send an email to coo@ey.com.
Africa’s smart future

Smart metering could resolve many of Africa’s energy challenges, including billing accuracy, energy efficiency, nontechnical losses and customer engagement. Eduard Stephenson reports.

One of Africa’s most pressing challenges is to provide access to energy and therefore economic growth, education and health. Solving the continent’s energy dilemma will depend on attracting investors to increase generation capacity as well as mobilizing consumers to use energy efficiently. Smart metering could be the fundamental “missing link” to help the sector achieve these goals — although overcoming challenges surrounding their implementation will not be easy.

Boost investor confidence

Prepaid smart meters that guarantee customer payment could be the answer to Africa’s stressed power supply while bridging the huge investment gap in the region’s electrical infrastructure. By ensuring collection of revenue, the sector could better attract global investors in new generation capacity and finance investment in other critical energy infrastructure.

Key potential benefits for power and utilities companies include:

- Cash collection
- Network optimization
- Reduced energy consumption
- Reduced nontechnical losses

Smart metering could also enable distributed generation and provide a means for small local generators (e.g., solar farms) to contribute power to the network and help provide a more reliable supply of electricity to a growing customer base.

Unprecedented challenges

But while the potential benefits of smart meters are significant, so too are the challenges to their implementation in Africa. Many of these difficulties are common to smart metering transformations taking place all over the world. What changes are required to the existing IT systems to integrate smart metering functionality? What smart metering functionalities are needed, and what information needs to be provided to customers? What is the best communication technology to collect, compare and act on the data? How long will it take to mobilize, coordinate and implement all the different components of the smart metering solution?

But utilities in Africa also face smart metering challenges unique to their region and, in many cases, unseen anywhere else in the world. Apart from huge capital funding requirements, these challenges include:

- Embryonic smart metering regulations
- Endemic problems surrounding electricity theft and vandalism of equipment
- Reluctance of some local municipalities to support smart metering projects
- Inadequate technology to support communication between the smart meter and central system
- Insufficient or unreliable existing data regarding consumers and existing infrastructure (e.g., location of substations)

Applying lessons learned

Despite the unique nature of many of Africa’s smart meter challenges, lessons can be drawn from other regions of the world. EY’s global smart metering network has the knowledge and experience to guide
African utilities with a multidisciplinary approach that covers the whole change journey:

1. Defining the vision, strategy and business case using benchmarking data to build robust feasibility studies and business cases for smart metering
2. Designing and implementing target operating models for the implementation of smart meters
3. Building a positive experience for customers and driving future revenue by helping clients communicate with customers, segment their customer base and improve back-office customer service processes
4. Defining the optimum supply chain for an efficient, reliable rollout, which may include providing independent advice to clients as they select, contract and manage supply chain partners
5. Driving technology and system changes; embedding smart characteristics in the organization to ensure a smooth transition to a smart metering environment
6. Operating and maintaining smart meter systems

Where to from here?

While Africa may be the region with the most to gain from the benefits of smart metering, it also faces perhaps the most difficult journey to its successful implementation. Overcoming significant difficulties will require utilities and municipalities to consider and understand the unique benefits and drivers that form the basis of the business case in Africa and manage stakeholders by showing them the benefits of smart metering. As Africa moves toward its smart future, EY is committed to supporting African energy companies and municipalities.

Eduard Stephenson
SSA Advisory Infrastructure Leader
eduard.stephenson@za.ey.com
+27 11 502 0394

Eduard is based in Johannesburg, South Africa, and currently leads EY’s SSA Advisory Infrastructure Team. He has over 18 years’ experience in consulting and program/project management within the private and public sector, including leading the program management team of Africa’s largest mass rollout of prepaid smart metering.
Evolving identity and access management

Identity and access management (IAM) is moving beyond compliance to become a valuable business tool. Making better use of IAM can help power and utility (P&U) companies improve operational efficiencies and user experiences. Tim Best reports.

IAM describes the management of user’s online identities and the authentication, authorization and privileges across IT and business systems. At its most basic, IAM defines what users can do on a system or network and under what circumstances. But now IAM is evolving beyond compliance to become a risk-based program that can help an organization achieve competitive advantage through lower costs, increased efficiencies and reduced risk of security breaches.

While P&U companies are now more aware of external cyber threats, many are still trying to grasp the magnitude of the risks that lie within. But as emerging technology trends and a changing business environment bring IAM to the forefront for utilities, it is time to see the bigger picture.

IT trends and regulatory pressure

Several new business pressures demand that IAM adapt to emerging technologies:

• Mobile computing
• Cloud computing
• Connected home
• Social media

<table>
<thead>
<tr>
<th>Maturity level</th>
<th>Characteristics of capability</th>
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</thead>
<tbody>
<tr>
<td><strong>Optimized</strong></td>
<td><strong>Processes</strong></td>
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<tr>
<td></td>
<td>When processes are automated, administrators will execute processes consistently</td>
</tr>
<tr>
<td><strong>Managed</strong></td>
<td>Processes are monitored for improvement opportunities and improved periodically</td>
</tr>
<tr>
<td><strong>Defined</strong></td>
<td>Standardized and documented</td>
</tr>
<tr>
<td><strong>Repeatable</strong></td>
<td>Similar procedures are followed by people performing similar tasks; highly reliant on the knowledge of the individual</td>
</tr>
<tr>
<td><strong>Initial</strong></td>
<td>Processes are informal and not standardized: applied on an ad hoc basis</td>
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It is important to note that many organizations will not reach the “optimized” stage in all, or even some, of the areas of the maturity model. The level an organization should be at in the maturity model is dependent on the overall goals and strategy of the organization.
Utilities face pressure to manage the big data generated by smart grids and smart meters, as well as more regulatory obligations. They must also deal with the increased interaction of today’s more empowered consumer.

But many P&U companies are stuck at a low level of IAM maturity, still using time-intensive manual processes, delivering IAM in organizational silos and lacking the resources to put in place the finer-grained user access required for today’s energy sector. This failure to master IAM creates inefficiencies, higher costs and a greater risk of inappropriate user access.

Lessons learned

Utilities should consider the impact of these trends on their business, evaluate their capability levels and decide where their IAM maturity should be. This is an individual decision. IAM can be a highly manual process and still be effective in meeting an organization’s goals. However, in these instances the cost of labor is high and will likely outweigh the cost of technology.

On the other hand, a highly automated IAM program will have a low cost of labor but a high initial cost to implement and an ongoing maintenance cost. The key is finding a balance between the cost of labor and the cost of implementation and maintenance while still meeting overall business, security and IAM goals.

As utilities progress their IAM maturity, lessons can be taken from sectors, such as banking and finance, which are typically more advanced in this area. These lessons extend across three key issues:

People

• Take a risk-based approach to IAM enhancements to ensure minimal business disruption
• Appoint one executive-level “program owner” who is empowered to make decisions to avoid confusion over responsibilities
• Ensure an experienced manager is designated as the “service owner” and that other project execution staff also have appropriate IAM skills

Process

• Integrate process improvements into awareness campaigns designed to educate users
• Document access control processes and perform periodic testing to validate that processes are being followed
• Inform key stakeholders that business processes will change to accommodate improved IAM capabilities

Technology

• Leading IAM products can usually meet most IAM requirements but may need configuration and/or customization
• Redefine access profiles in terms of roles so that they can be more easily understood
• Define a business-friendly name and description for these access profiles

Our teams can advise on the technology and tools that best suit a P&U company’s own IAM needs.

Case study

IAM in action

Bank

Original state

Inadequate user provisioning processes, inefficient manual review processes and toxic combinations access – for example, where a line manager is able to approve their trades as well as those of other team members’

Challenges

In addition to the risks of ineffective IAM, a lack of consensus regarding how to approach the problem compounded the issue’s complexity.

Maturity-level transformation

Repeatable to managed

IAM solution

Short-term solution: Data analysis techniques identified segregation or duties conflicts across 800,000 entitlements.

Longer-term solution: The company implemented a standardized process for the provisioning and de-provisioning of user entitlements at the operating system, database and application levels.

Benefits

Taking a risk-based approach, the company developed segregation of duties remediation plans for more than 6,000 accounts, bringing the company in line with risk and compliance targets. Balance between short- and long-term solutions allowed the company to prioritize resources and funding.
A balanced approach

P&U companies must evaluate whether the maturity of their IAM function is keeping pace with IT trends and changing business needs. Leveraging insights from sectors with more mature IAM models can help ensure best practice is adopted. A risk-based action plan will support the development of an integrated IAM function, which is aligned to the needs of the business and drives value. Whichever approach is taken, the key message for P&U companies is not to consider IAM as an isolated function but as part of other information security technologies that provide an overall picture for an organization.

Tim Best
Director, EMEIA Advisory Services
tbest@uk.ey.com
+44 20 7951 5271

Tim is a director in EY's EMEIA Advisory Services, Information Security Center of Excellence (CoE). He has more than 14 years of experience in information security consulting and project delivery. Tim has worked with clients across the EMEIA Region in the private and public sectors in a wide range of information security roles, including IAM, ISO 27001 review, risk assessment, security program management and cyber defense.
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