

Asset gain or drain

Are you making the right enterprise
asset management decisions?



The roundtable

More than 40 senior executives and experts from 14 different countries gathered in May 2012 in Rome, Italy for PwC's roundtable on the enterprise asset management challenges facing power and utilities companies. Participants were drawn from different parts of the gas and electricity industry as well as from PwC. The moderators and speakers were (in order of appearance):

Jane Yura	Vice President, PG&E
Manfred Wiegand	Global Power & Utilities Leader, PwC Germany
David Etheridge	US Power & Utilities Leader, PwC US
Pim Roest	Partner, PwC Netherlands
Minnakaisa Ahonen	Manager, Grid Management, Fingrid
Rune Hernes Bjerke	Quality Manager, Statnett
Antony Cook	Director, PwC UK
Barry Middleton	Senior Manager, PwC UK
Annie Krist	Managing Director Gas Transport Services Division, Gasunie
Susan van Bokhorst	Advisor Asset Management, Gasunie
Ton Duijn	Director Process Governance and Improvement, Vattenfall
Gian Luca Noferi	Head of Industrial and Environmental Risk Management, Enel

Introduction

Power stations, gas pipelines, electricity cables, substations, the list goes on. Assets are the lifeblood of the power utilities industry. And that is before counting all the data assets, buildings, people and other assets that are part of running a modern business. As David Etheridge, PwC's US power & utilities leader, observed at the beginning of the Rome roundtable: "What makes an operator in this industry? It's all about managing assets. It's the soul of the business."

But with physical assets come the pressures of operating those assets, including the dilemma of maximising utilisation rates while reducing the costs of operation. And there can be a fine line between asset gain and asset drain or, even worse, asset disaster.

Consider the experience of leading US power utility, Pacific Gas and Electric Company (PG&E). In a split second in the early evening of September 9, 2010, a 30-inch-diameter underground natural gas transmission pipeline ruptured in a residential area in San Bruno, California. The pipeline had been installed over 50 years previously. The explosion and resulting fire killed eight people and injured 58. The incident affected 108 houses, destroying 38 homes.

PG&E owned this particular pipeline but who can say that it might not have been any other power utility company that it could have happened to? The company established a US\$100 million Re-Build San Bruno fund within 72 hours of the accident and PG&E expects to be among the first utilities in the country to meet the new standards established by California in the years ahead. In its 2011 year-end results, the utility reported that it has incurred, at shareholders' expense, a total of US\$546 million pre-tax for natural gas pipeline-related actions since the accident. It also reported that it has so far set aside total provision for third-party liability of US\$375 million¹.

The roundtable heard directly from Jane Yura, PG&E's vice president gas operations standards and policies, who has been central to many of the company's reforms following the accident. These include significant management and organisational changes, including the separation of gas and electricity operations. They also include a huge records review programme to ensure records are traceable, verifiable and complete and, where they are not, digging up or doing whatever is necessary to remedy that. The company has 42,000 miles of gas distribution and 6,750 of gas transmission and has embarked on a massive programme to verify system safety through strength testing and maximum allowable operating pressure validation.

The San Bruno accident highlights the importance of good asset management and set the tone for a very wide-ranging roundtable discussion. We focus our summary on:

- *experiences of implementing PAS55*
- *asset management optimisation*
- *ageing assets and capital investment*

¹ PG&E Corporation year-end and fourth quarter financial results for 2011, February 16 2012.

“For asset-intensive companies like power utilities, asset performance is critical”

Manfred Wiegand, global power & utilities leader, PwC

PAS55

“Implementing PAS55”

Anyone falling into the trap of thinking of asset management and PAS55 as just tick-box exercises would have been pulled up sharp by the roundtable discussion. Not only did participants look at the impact of catastrophic asset events on companies, such as the San Bruno explosion in California, but they also looked at how improved asset management can boost financing by helping companies provide evidence to support tariff and investment cases.

Following the San Bruno explosion, PG&E is implementing PAS55 with a timetable of completing system safety certification through PAS55/ISO 55001 by July 4, 2014. In the period of preparation for certification, the company is getting important benefits from using the PAS55 governance activities. PG&E's Jane Yura explained: “Our rationale is that it provides a very objective standard and a process in which to manage your assets from end to end. Asset management is a long-term proposition and it is important to have something that is very structured and sustainable over a long period of time.”

The focus on risk-based decision making at a granular level by asset class is regarded as a strength of PAS55 by Yura. She also pointed out: “What’s important about PAS55 is it really becomes a much more expanded view of what assets are. PAS55 not only looks at the entire portfolio of assets but it extends beyond that and begins to look at your workforce, your suppliers upstream, in order to make sure that you are considering everything that could be associated with introducing risk in how you manage those assets.”

The roundtable event also heard from two Scandinavian transmission system operators, Norway’s Statnett and Finland’s Fingrid, about their experiences in introducing PAS55 in their companies. Statnett’s Rune Hernes Bjerke explained that the background to the initiative in his company was a broad analysis of cost efficiency conducted by PwC which had revealed a potential for efficiency improvement and hence increased value for Statnett using the PAS55 approach. The result was a decision in 2011 to identify the gaps that would need to be closed and to seek PAS55.

What is PAS55?

As the international benchmark for asset management, PAS55 defines the principles of industry leading practice for effective physical asset management. Power utilities companies have been among the early adopters, recognising the assurance that certification provides to all stakeholders, particularly regulators. This recognition has gathered momentum globally, initially within the power, water and gas and distribution sectors, power generation and more recently in the transportation sectors with rail companies, airports and logistics companies seeking certification.

“Right now we are planning for the stage one assessment ahead of an expected certification audit later in 2012,” says Bjerke. “The process has been challenging to implement alongside other pressures but it is important and is proving useful in breaking down the silo walls that tend to characterise most companies. Risk management and the coordination of planning processes within the company is crucial in this process. We have an extensive investment portfolio and PAS55 requirements can be a good basis for developing investment and regulatory relations.”

Minnakaisa Ahonen, manager, grid management, Fingrid, outlined the experience of PAS55 in her organisation. In common with many other companies, Fingrid uses a range of tools for development and performance management, including benchmarking against industry peers, internal key performance indicators (KPIs), statistics and comparison studies. The company performs well in such studies and it turned to PAS55 as a way of looking further at how it could improve processes. Fingrid has had PAS55 certification since 2010 and it is up for renewal in 2013. But Ahonen stresses that: “Certification was never the goal. It is not about earning the certificate but a way of improving things.”

Ahonen’s point that it is ‘not about the certificate’ was taken up by PwC’s Antony Cook: “Any organisation that sees PAS55 as just a short term badge-gathering exercise is unlikely to translate it into medium and long-term business benefit. Value can only be derived through a rigorous and informed assessment. The journey towards certification requires alignment of operations and cultural change which can only be delivered on an incremental basis and requires ownership from the business functions across the enterprise, not just asset management.”

Q&A

Have you made specific organisational changes in order to roll out PAS55?

Jane Yura, vice president, PG&E: “We looked at what organisational structure we needed to enable us to move through this process as effectively as possible. Within our gas organisation, we have a very clearly defined group in charge of information about our assets and what rules apply; we have a group whose job is to do integrity management and determine what work needs to be done based on this information and to prioritise it; and then the third group is construction and maintenance which is implementing the asset management plan.”

What are the main lessons from your PAS55 journeys so far?

Rune Hernes Bjerke, quality manager, Statnett: “Risk management and portfolio planning took most of our focus and resources within this process. We had several routines and processes related to planning, whether it was reinvestment or new capacity, that were not coordinated and we are seeking to shape them all into a common risk management methodology. It’s not going to happen overnight. We are constructing a castle on the horizon and we must make sure the PAS55 auditor has confidence that we are constructing it well.”

“A highly integrated approach to EAM is important – too often processes are managed independently with asset and work management, planning, execution and measurement disconnected from enterprise goals”

Pim Roest, partner, PwC Netherlands

Minnakaisa Ahonen, manager, grid management, Fingrid: “I have similar experiences with parts of our risk management. We had an operational risk management which was done differently in different silos and strategic risk management was much the same. So we have tried to improve that process to do it in a similar way across the whole company. Also, we had different levels of detail in the way people used the asset management policy with some departments addressing things in a general way and others very detailed. It is difficult. We have improved but it’s going to be a challenge for us in the future too.”

“Balancing and integrating risk management”

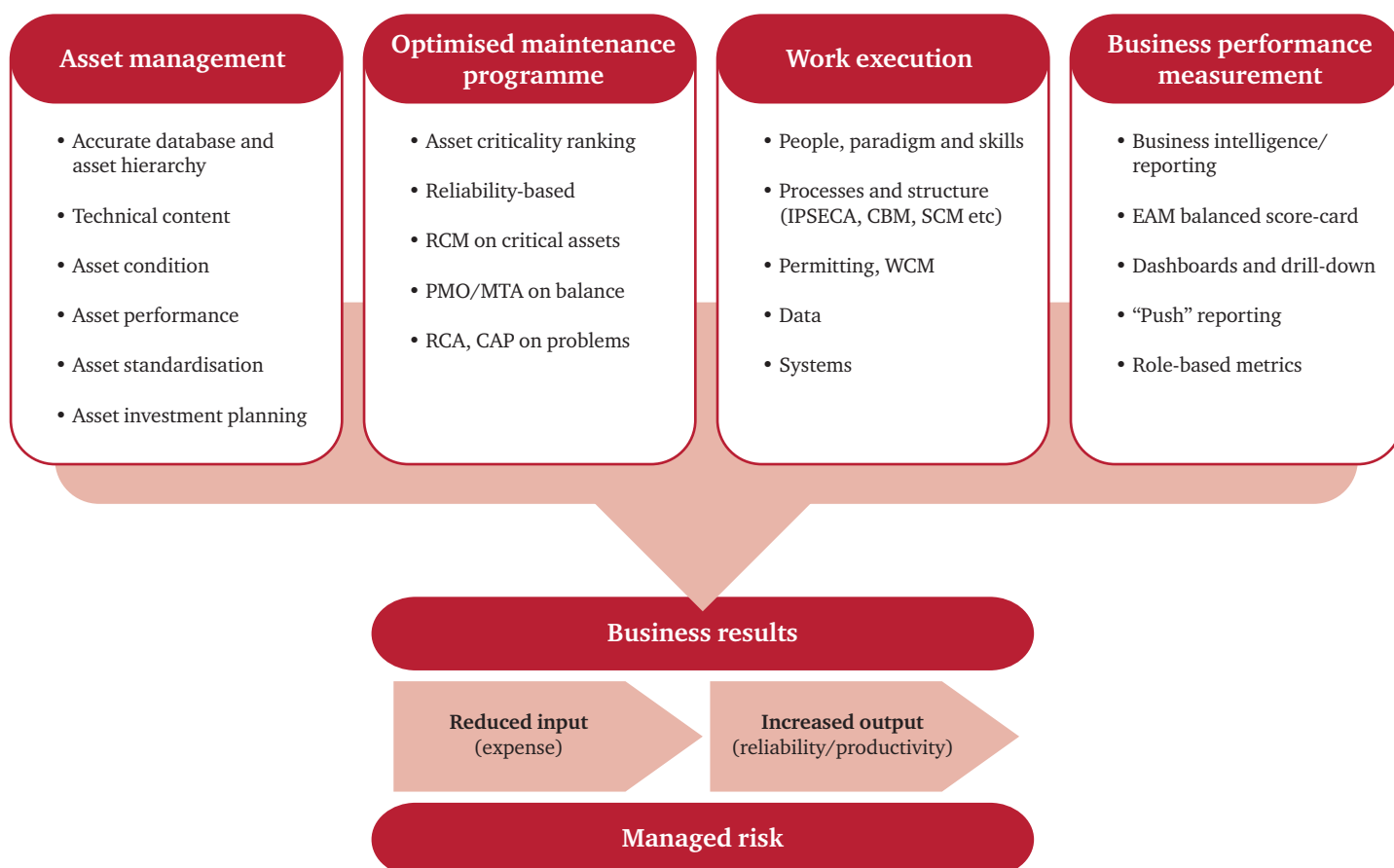
Many power and utility companies have grown rapidly in recent years, acquiring different assets, in different countries, with different histories, technologies, processes and management approaches. This landscape presents a major challenge for asset management optimisation.

Italian company Enel has expanded significantly, with assets and projects in Europe, the Americas and North Africa. As well as being the number one electricity company in Italy, it is the second largest in Europe by installed capacity. The company has developed and is implementing an integrated industrial and environmental risk management system that enables it to measure risks and optimise projects and assets across the group.

Gian Luca Noferi, head of industrial and environmental risk management at Enel, told the roundtable: “All the different businesses – generation, distribution and market, and upstream gas – have a common process. It gives us a consistent way to measure risk regardless of the difference in people, asset type, country, mindset and so on. We then have a way of mapping all of our projects and plants and making relative comparisons.”

The risk management framework covers both direct and indirect losses that could arise from a variety of eventualities, such as inadequate or failed systems, processes or plants, human error, business interruption or external events. It also enables Enel to evaluate the impact of different investments and other actions: “We can optimise our capital allocation to reduce the risk profile of the whole portfolio. It can be used to look at the effect of adding or taking away assets in the portfolio. We can also evaluate operation, maintenance and investments in risk mitigation, such as how the risk profile changes with the availability of strategic spare parts. We can also look at the impact on value at risk that could arise from specific events such as major machinery breakdown, a fire or a natural catastrophe.”

Four key elements for effective asset management (EAM) improvement



Swedish company Vattenfall is one of the leading energy companies in Europe. It has a strong presence particularly in the Netherlands, Denmark and Germany as well as its home market. Ton Duijn, director process governance and improvement in the thermal business unit of Vattenfall, explained how the focus of asset management is changing: “The aim of the thermal asset management process is to maximise our overall net present value (NPV) by operating and maintaining our individual assets as cost effectively as possible.”

The focus on NPV comes at a time of considerable challenges for electricity producers: “We see a lot of volatility and we see a lot of volatility coming. To face these challenges the thermal business unit is introducing one harmonised asset management process. Of course, we have done asset management for years but now we want to restructure so that we have the same understanding, the same language and the right transparency to manage our plants in the market place.”

A key part of this change is to have a single person responsible for asset management of each single asset: “In the past we had one person for technical issues, one for investment issues, another for permitting and so on. We think one person should have the overview for one plant. So far I have not seen that in our industry and it is a big change for some of our colleagues to have one person steering and controlling the NPV of the unit.”

Q&A

How do you identify and analyse industrial and environmental risks?

Gian Luca Noferi, head of industrial and environmental risk management, Enel: “We rely on a balanced mix of historical data, risk owner and risk experts opinions and specific indicators. The system is fully vertically and horizontally integrated and is able both to evaluate the industrial and environmental risk of the whole group and to drill down specific divisions, technologies, projects, plants, asset, systems, components and so on.”

Do you have goals for risk reduction and a certain amount of short-term risk reduction to be attained?

Ton Duijn, director process governance and improvement in the thermal business unit of Vattenfall: “We focus a lot on safety. We have to respond to market conditions, added volatility and pressure on margins to optimise the commercial value of our units. But most of all we have to do this without jeopardising safety. But we do take risks on managing the balance of unavailability or unreliability. We focus more on managing the reliability of the power than on managing the availability of power plants.”

Have there been major changes in how you organise the risk management function in the company?

Gian Luca Noferi: “Three years ago Enel reorganised to have one single point for a full view of the whole risks of the group. So we have the chief risk officer (CRO) reporting directly to CEO of the Enel group. As head of industrial and environmental risk management I report direct to the CRO. We also have in place functional reporting lines with risk units inside each Enel company.”

Ton Duijn: “Our main change in the thermal business unit that I am part of is to have all regions aligned on one integrated, structured and systematic asset management process model. The goal is to have a clear and efficient standardised process model that determines how to maintain plants from market requirements to the delivery of power and heat.”

“Investing in asset renewal and replacement”

Managing ageing assets whose ownership may have changed hands many times, often with incomplete records, is a challenge faced by most power and utility companies. Companies need to judge investment needs and make the case to their regulators for how much investment in renewal and replacement infrastructure is needed. Good asset management practices are essential in supporting operations and in making the investment case.

Gasunie is an independent gas infrastructure company, providing the transport of natural gas and green gas in the Netherlands and the northern part of Germany. As such, it is at the hub of gas transportation in western Europe at a crossroads between the major North Sea production area, large consumption markets and sources of supply further north and east. Although most of its network has always been in its ownership, it does face the problem of ageing assets.

Much of its infrastructure was developed with the emergence of the Dutch gas fields in the 1950s. Annie Krist, managing director gas transport services division in Gasunie, commented: “Our assets are almost all at the end of their lives. We are now in the position of renovating and replacing much of the network.” The company is running two major network improvement programmes – the GNIP (Gasunie Network Improvement Programme) and REOP (Rotating Equipment Optimisation Programme).

Annie Krist elaborated further: “Replacing valves is a big part of the GNIP because we have safety issues in just trying to maintain them. But the problem is there are almost 3,000 of them and it is a big programme to dig up and replace them all.” The REOP focus is on gas-driven compressor stations which are not yet at the end of their life but where Gasunie sees opportunities for emissions reduction improvements and overcoming spares availability problems.

Susan van Bokhorst is one Krist’s colleagues focusing on asset management and also the development of PAS55 in Gasunie: “We have to take a very long-term view of assets,” she says. “PAS55 is a risk-based approach which, of course, is logical but a key question is how do you quantify it? How do you estimate the likelihood of something happening by really putting numbers on it – could it happen once a year, once every 10 years, once every 100 years?”

The starting point for this highly quantified risk-based approach is what Gasunie calls 'asset clusters'. The company has grouped its assets into eight or so asset clusters and is assessing these against cost, environmental, security of supply and safety criteria to see whether they fall into a high risk, controlled risk or relatively low risk area. It uses key performance indicators, bow-tie analysis and expert judgement to assess all potential risks and put numbers on them. Van Bokhorst said: "Our ambition is to have all these asset categories plotted on a risk matrix. PAS55 is a useful framework and we will be using it where we can identify it will bring added value, in particular we see the REOP as an excellent opportunity to roll out PAS55."

PwC's Barry Middleton has considerable experience in asset management change programmes, focusing on data improvements, decision support tools and performance and costing methods in the UK utilities sector. He briefed the roundtable on the recent experience of a major water utilities company that found their investment case pegged back by the regulator at the time of a price review. He recalled: "The investment plan was cut down dramatically because the regulator felt that the company was being over-reliant on expert judgement in its asset management approach and did not have sufficient environmental and other data to support its investment case. Losing 30% of their investment case was a major wake up call."

The company responded by embarking on a data improvement and decision support tools programme to improve data quality in key areas and implement tools that are designed to improve investment cases to the regulator in time for the next price review. PwC is assisting with the delivery of the programme as well as business change in the asset management function.

"Losing 30% of their investment case was a major wake up call."

Q&A

My company is starting to model our risk register. How do you determine the threshold of risk that you're targeting or willing to live with?

Susan van Bokhorst, advisor asset management, Gasunie: "We looked at our risks and we took references from other industries to take a view on acceptable thresholds. Our aim was to take best practice of the rest of the world and apply it to what we already had in place."

Is PAS55 always a logical step for companies who are seeking to improve their asset management capability?

Barry Middleton, PwC UK: "Not always. Companies need to look at their own situation and assess what is right for that. It's actively encouraged by many regulators and is gathering momentum internationally. The framework is always useful but there may be important priorities that are best tackled before embarking on PAS55 formal certification."

Data and the availability of information is crucial, to what extent do you feel that it is sufficiently in place?

Annie Krist, managing director gas transport services division, Gasunie: "The data is not all available and I'm pretty sure some will never be. There are some older parts of the system that date back even before 1960. For example, we have 100km of what's called 'army petrol pipelines'. They were built by the Allied Forces during World War Two and then bought by the Dutch State Mines to transport gasified coal gas before going over to us. We are simply replacing every single kilometre."

Review

A summary of the important points emerging from the roundtable discussion:

- 1** Power and utilities companies are gaining significant benefits from addressing gaps and opportunities in their enterprise asset management (EAM) systems.
- 2** Effective and efficient enterprise asset management is a vital bedrock for addressing the safety, asset maintenance and renewal, and capital investment challenges facing companies.
- 3** Many companies are deciding to pursue PAS55 certification while others are deciding not to seek formal certification but are finding the PAS55 framework useful as part of their approach to EAM.
- 4** Developing a common risk management language throughout the organisation is all-important and was highlighted as a key priority by many companies.
- 5** EAM performance improvements is important for improved investment decision making, through whole life costing approaches, investment optimisation and greater deployment of decision support tools.
- 6** Increased efficiency in asset management, potential for cost reduction identified, improved asset performance, improved contractor and direct labour management.
- 7** Taking an expanded view of assets is important, looking beyond the physical portfolio to consider the outside environment, your workforce, suppliers, sub-contractors and everything that could be associated with introducing risk in how you manage those assets.
- 8** PAS55 is proving useful in the dialogue with the regulator, demonstrating legal, regulatory and statutory compliance through evidence in the form of controlled and systematic processes.
- 9** Data is important but people are everything. It's important to create awareness that everyone in the organisation has a contributory role to play in an effective asset management system, instilling a sense of purpose, ownership and direction.
- 10** Companies at the roundtable reported that their EAM projects can be helpful in addressing silo mentalities and developing greater consistency, cohesion and a 'one team' perspective in managing risk.

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