Premiere Issue

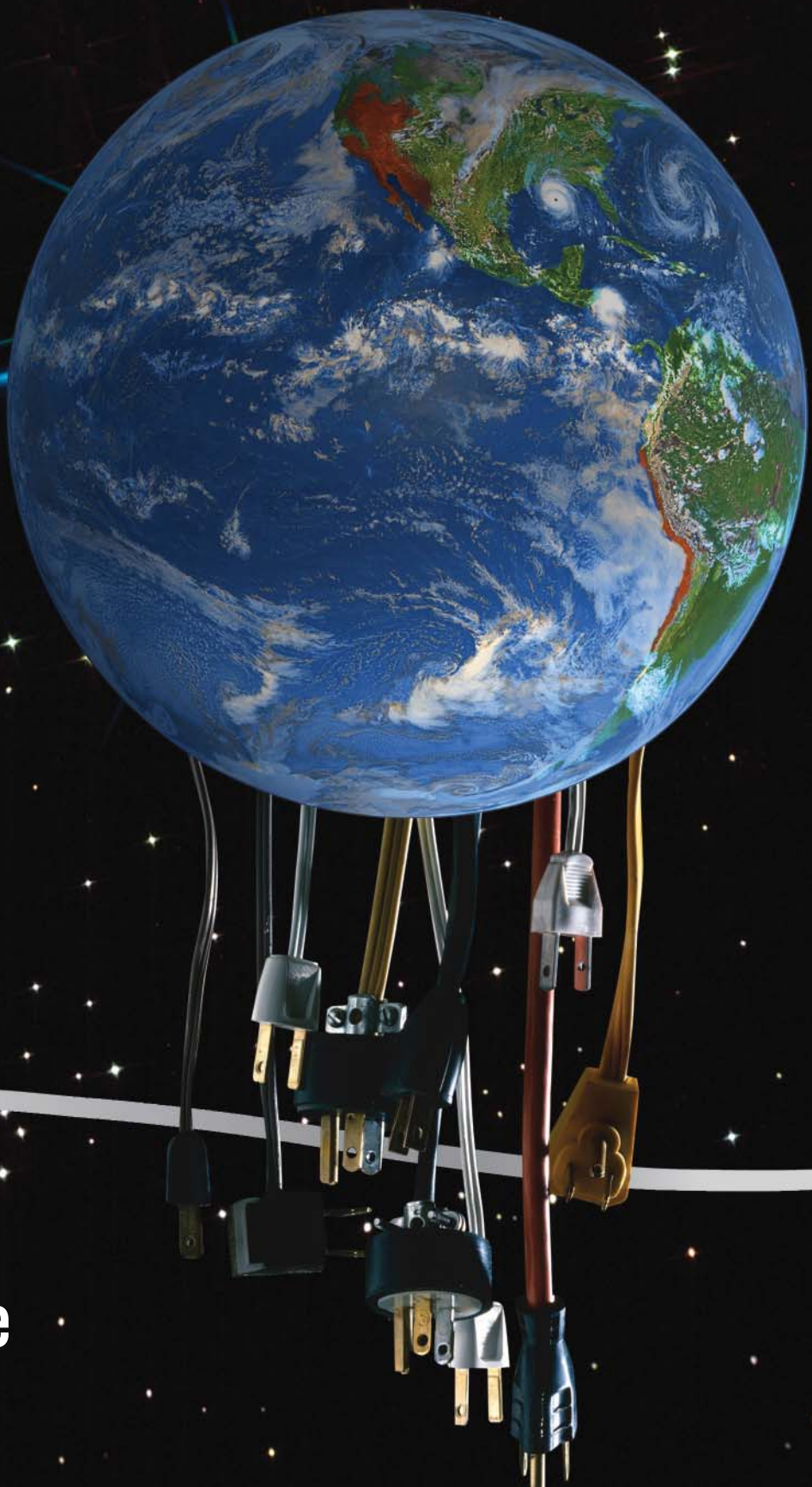
e2

ENGINEERING ENERGY

South Africa
Stepping Up to
the Energy Crisis

United Kingdom
Integrating Nuclear
Back into Energy Policy

United States
Watts Bar Unit 2
to Come Online



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Executive Editor
Della DeMaro

Managing
Senior Editor
Donna Ruff

Graphic Designer
Leah Brokenbek

Photographer
Tom Lobaugh

OUR PERSPECTIVE

FEATURES

Welcome to the inaugural edition of e-Squared (e^2), Westinghouse's new industry news magazine. e^2, for *Engineering Energy,* is the successor publication to Westinghouse *World View*. As the outlook for nuclear power is rejuvenated, it seemed appropriate to do the same for our customer magazine. And this is a fitting time to make such a change, for although the nuclear rebirth is still in many ways in its infancy, it is now clearly a reality as articles and news items on subsequent pages will verify.

We hope you enjoy the first issue, and we look forward to comments and suggestions to make subsequent renditions even more compelling.

The Editors

Please email comments and suggestions to e2@westinghouse.com

A well-known American college football coach continually decries:
"It is impossible to stay the same. We will either get better, or we will get worse."

These words ring true in virtually every setting: for athletes, for politicians and government officials, for artists and musicians, for the medical community and – perhaps doubly – for the engineers, technicians, scientists and business leaders of the commercial nuclear power industry.

Our industry has no choice. We simply cannot stay the same.

Fortunately, our industry has embraced continual improvement and operational excellence with an ongoing commitment to new technologies, new products and new processes that is virtually unsurpassed. The result: positive trends relating to such diverse areas as operating plant capacity factors, new plant building commitments, and general public acceptance of, and support for, the ongoing and increased use of nuclear power throughout the world.

This issue of our customer magazine is reflective, we think, of our commitment to ongoing improvement. In addition to a new name, e^2 – *Engineering Energy* (formerly *World View*), this issue carries a number of articles that we believe are more reflective of the positive change that is sweeping through our industry.

Articles in this new Westinghouse magazine are designed to be more readable and enlightening, while also maintaining focus on the nuclear power industry. This issue, for example, features in-depth analyses of the energy needs of the United Kingdom and the Republic of South Africa. However, instead of simply outlining the opportunity for new nuclear construction in each country, we put the nuclear segment of each country's energy equation in the context of the larger economic, political and natural resource realities.

Finally, many of you know that I announced in April that I would retire as President and CEO of Westinghouse effective July 1, and that I would be succeeded by Aris Candris.

In closing this letter, I would like to say that I believe our industry is on the threshold of greatness, and that the new leaders, like Aris, who are now moving into senior positions throughout our industry, are highly capable and incredibly well positioned to ensure that "we keep getting better."

Regards and best wishes,

Steve Tritch

President and CEO, Westinghouse Electric Company

DIMMED LIGHTS IN BRIGHTEST AFRICA

By George van der Merwe

WHAT TRIPPED AFRICA'S LARGEST ECONOMY?

As a new year dawned in South Africa, Eskom, Africa's largest producer of electricity, found itself working around the clock to try its best to provide adequate power to its household, business and industrial energy consumers. Due to concurrent power problems, about a quarter of the existing generation capability went down. Among its more immediate actions, Eskom implemented "load shedding," using a series of rolling brownouts to relieve demand and avoid uncontrolled blackouts.

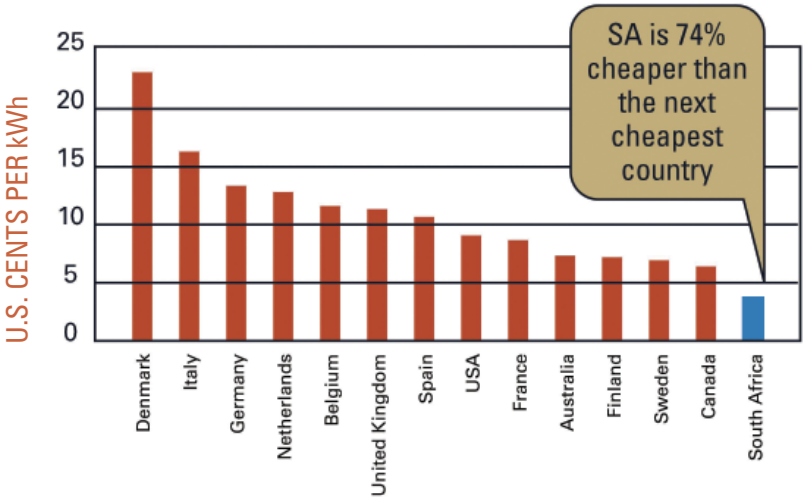
Example: 28 January 2008	MW
Eskom capacity and imports	39,855
Operating reserves	1,800
Planned maintenance	3,715
Breakdowns (e.g., boiler tube ruptures, etc.)	4,235
Reduction in capacity (e.g., wet or insufficient coal)	2,694
Total capacity available for supply	27,411
Demand	**32,280**

Figures compiled from various print and online sources by author.

"Load shedding" is a controlled way of rotating available capacity between all customers at times when demand is greater than available supply. The objective of this mechanism is to alleviate pressure on the national transmission network to avoid uncontrolled blackouts in a region or, in worst-case scenarios, the entire country.

Eskom, with revenues of over $5 billion U.S., serves more than 3.7 million customers throughout South Africa. The vertically integrated utility generates 95% of the electricity used in South Africa and more than 50% of the total electricity produced in Africa, making Eskom by far the continent's largest utility company.

The suddenness of the crisis rocked the South African economy to its core. Even the powerful and politically influential gold, platinum, diamond and coal mining industries were hit hard. By the end of January 2008, the gold mines were forced to cease operations for five days as a result of power outages; this alone cost the South African economy billions of dollars in lost revenue. Yet this is the nation that produced Nelson Mandela – whose steadfast strength turned demise to hope to a new paradigm – South Africa is once again turning poor fortune to a brighter future.



Information from NUS Consulting Group, April 2007

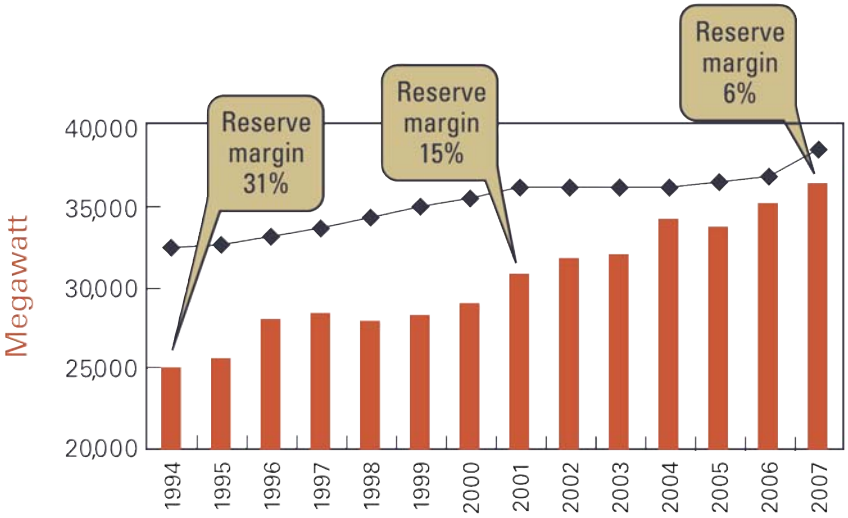
ESKOM — A FLAGSHIP SUCCESS

Eskom's stated mission is to provide electricity to all South Africans and it has made tremendous progress towards that end. As the world's seventh largest utility in terms of generation capacity and ninth in sales, Eskom has been South Africa's flagship success.

The utility has been widely recognized by the global community; it is the recipient of several coveted international awards, including "Power Company of the Year" in 2001 and "The Company that Anticipated History" in 2006. Eskom's reputation earned it investment-grade credit ratings from Standard & Poor's and Moody's and Fitch – an unprecedented accolade for a state-owned utility in a developing country. It has long been in the forefront of bold corporate social initiatives and had a major impact on social reforms long before the fall of apartheid. When Nelson Mandela was elected in 1994, only 30 percent of South Africans had electricity in their homes. By last year, Eskom had increased this to 70 percent and succeeded in producing and selling the electricity at a price much lower than anywhere else in the world.

CHALLENGES AHEAD

Critics have pointed to a 1998 white paper that was tabled in the South African parliament in which experts indicated that Eskom needed to expand its generating capacity or face a serious shortfall by 2007. But it took more than six years before the government acquiesced. Now, Eskom has embarked on a major five-year capital investment of R350 billion (rand) or ($50 billion (U.S. dollar)[1] to make up the shortfall in its power generation capacity. And the utility has requested a 53 percent tariff increase in place of the 14.2 percent granted in 2008[2] in a bid to close the ever increasing gap between its rising operational costs and prevailing tariffs, as well as to fund the new build program.

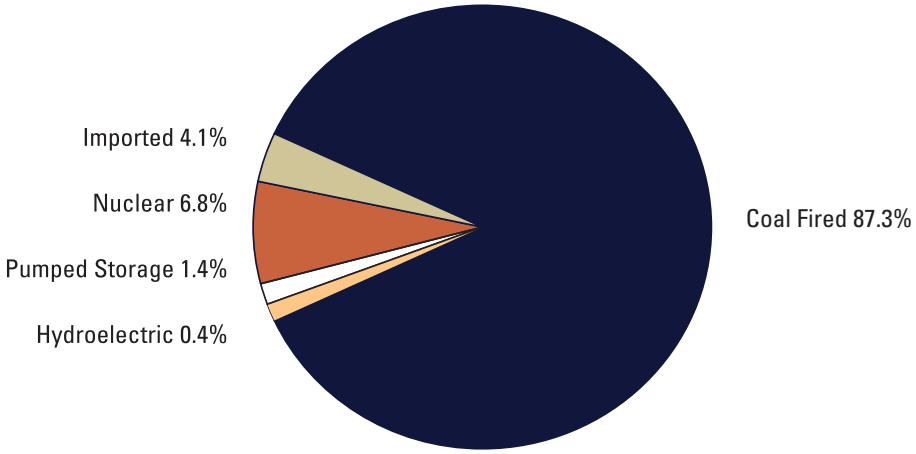


Ideally, 20% reserve margin is maintained to cater for planned maintenance, unplanned outages and system stability

Graph courtesy of Profesor A. Eberhard, University of Cape Town

1. All currency amounts are based on 7.0 to 1.0 rand to dollar conversion ratio.
2. "Minerals and Energy Minister Buyelwa Sonjica stressed on Tuesday that Eskom's requested 53% electricity tariff hike was 'not finalized yet,' and gave an assurance that South Africa's poorest citizens would be cushioned in the event of a material hike," *Engineering News Online*, April 1, 2008.

Energy generation in South Africa (Graph by the Dept. of Minerals and Energy)



With frankness and honesty, South Africa's President, Thabo Mbeki, admitted that the government had blocked Eskom's expansion plans in 1999. "When Eskom said to the government: 'We think we must invest more in terms of electricity generation' … we said, 'Not now, later. We were wrong. Eskom was right,' " Mbeki said.

Financial analysts at the global financial firm of Lehman Brothers (Evan Pickworth, *I-Net Bridge,* Feb. 2, 2008) have ventured that chronic under-investment in Eskom is now coming up against "soaring household and industry demand." "Inefficiencies at the power company and very heavy rain, affecting coal-fed power stations, have also hit supply," note the analysts.

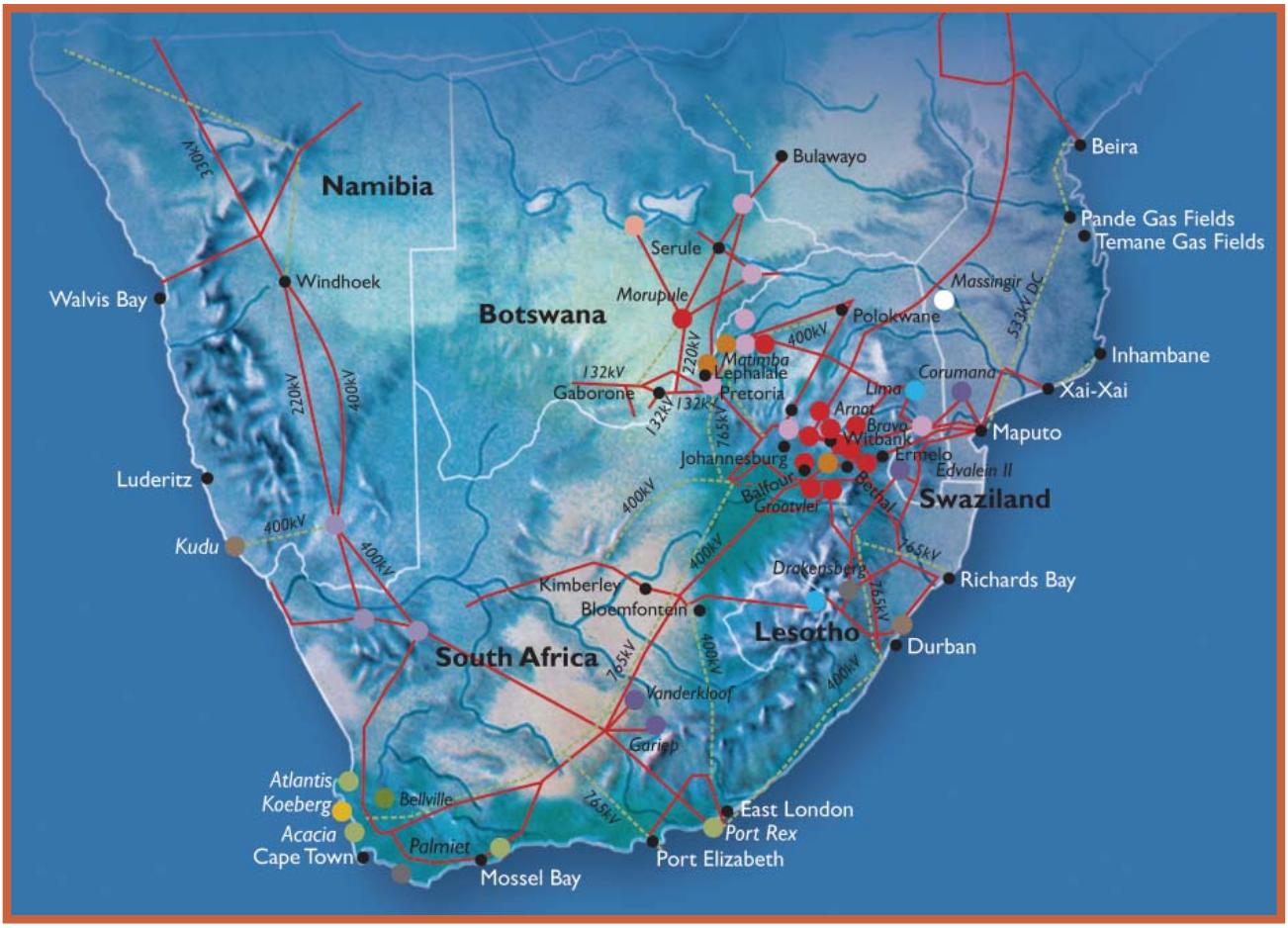
Eskom also has a serious skills shortage, needing 1,400 engineers, technicians and artisans immediately and another 6,200 over the next five years. According to statistics, South Africa produces about 1,400 engineers a year at all of its training institutions. Eskom is currently advertising some 850 positions. It has also started an aggressive skills recruitment drive, locally and internationally.

The government's response plan has been to:

- Introduce a Power Conservation Program to improve the reserve margin
- Restore coal stockpiles
- Contract with independent power producers (IPPs)
- Source cogeneration partners
- Develop alternative energy sources
- Concentrate on Eskom's new build program
- Provide a R60 billion ($8.5 billion) loan to help finance infrastructure expansion

POWER CONSERVATION PROGRAM

The government's target is to save 3,000 MW in the short term. Industrial and household users have been requested to cut back 10 percent on normal usage. While industry has responded well to the call, households seem slow to react, but Eskom and government are addressing this. A current program to replace household light bulbs with compact fluorescent lamps could save 1,000 MW, and there are plans to replace some two million electric geysers with solar ones, effecting a 1,300 MW savings. The government is looking to introduce regulations to incorporate solar water heaters by 2010 in all new houses valued at over R750,000 ($107,000) or larger than 300 square meters. This would also apply to commercial buildings, hostels, resorts and shopping centers.



Since 1994, Eskom has increased the percentage of households in South Africa receiving electricity from 30 to 70, and has been internationally recognized for its significant accomplishments.

Used with permission of Eskom - Grid map data from Eskom's 2008 Annual Report

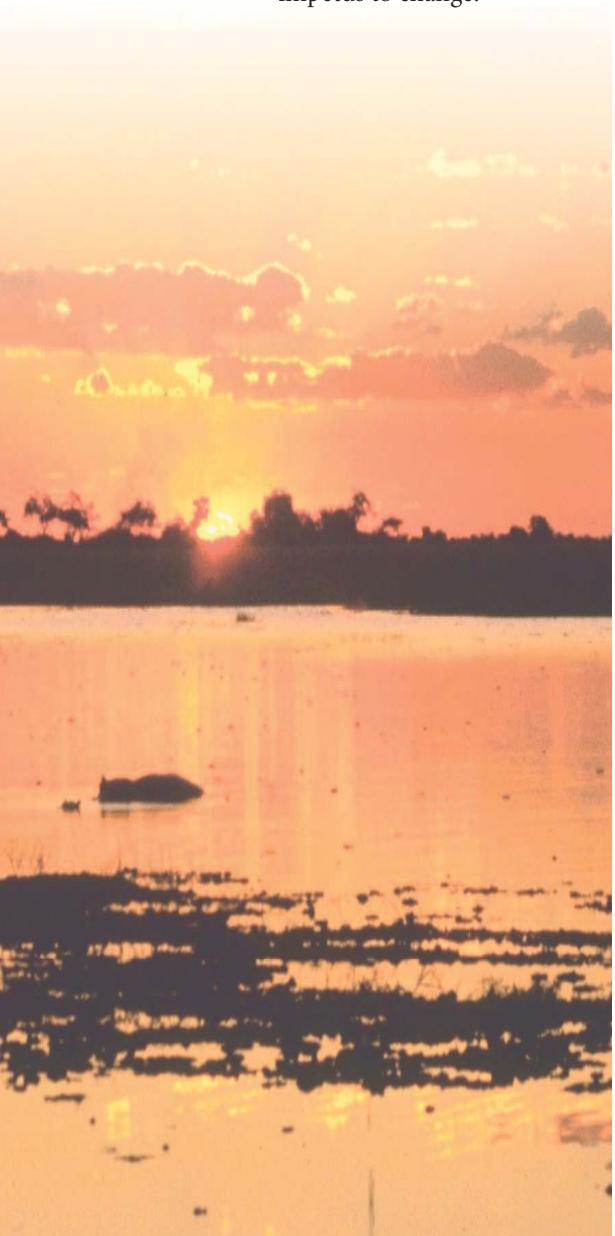
COAL STOCKPILES

Meanwhile, Eskom has increased the coal stockpiles at power stations to an average of 13 days.[3] Chief generation officer, Brian Dames (Quoted by *News24*, March 8, 2008), said of the five power stations with the lowest stockpile-days, only one remained below the desired level. Eskom announced that it secured 37 million of its planned 45 million tons of coal to supplement its current contracts (125 million tons a year) and provide 20 stockpile-days on average. It will cost up to R11 billion ($1.6 billion) more to achieve this, but Eskom has confidence that its goals will be met before winter. This is a formidable logistical challenge, as most of the coal would have to be freighted by roads that are in a poor state. Majuba power station alone requires 1,600 truckloads per day. Eskom announced that it would contribute R550 million ($79 million) towards urgent repairs to the road network.

3. The primary reason cited by Eskom for the need for a further electricity price increase is the increase in the price that Eskom is having to pay for its additional coal needs and to replenish stock piles. *IOL*, Feb. 25, 2008.

INDEPENDENT POWER PRODUCERS

IPPs may provide up to 5,000 MW (compared to the current 3,000 MW savings target) from small-scale hydro, gas turbine, biomass, wood and solar power production. There's no systematic mechanism established in South Africa for the sale back of power to Eskom and legally, electricity producers may only sell to Eskom or to municipalities that distribute electricity. Because Eskom has historically been producing some of the cheapest electricity in the world, there hasn't been much scope for private sector production. Current events may be the impetus to change.



COGENERATION PARTNERS

In many ways, South Africa has demonstrated a very positive response to this urgent wake-up call and shown a commendable entrepreneurial and innovative approach to solving the problem. A number of companies with foresight have already prepared themselves for the expected electricity shortfall.

Independent Power Southern Africa (IPSA), a company listed in South Africa's alternative commodities exchange (AltX) and also incorporated in the U.K., announced a deal with the government's Central Energy Fund for a private sector gas turbine power station. IPSA will install 521 MW gas turbines in support of the integrated liquid fuel and liquefied natural gas (LNG) importation project. This will be one of the first examples of a public-private partnership in South Africa for an integrated LNG to electricity project, the U. K. group said.

South Africa's major paper producer Sappi, is considering adding 150 MW of generating capacity to supply its own needs and that of the grid. Four of Sappi's eight paper mills already generate electricity. Sappi spokesperson Andre Oberholzer said the company would produce more than 50 percent of its own energy requirements, following an expansion project.

The large sugar producers Tongaat-Hulett and Illovo estimate that, using combined cycle technology, they could generate up to 1,300 MW from sugar cane bagasse. Tongaat-Hulett tested cogenerated power successfully on a small scale in 2007. The average electricity price in South Africa currently is about R1.81 ($0.26) per kilowatt-hour; it is thought that an approximate doubling of that price will be needed to make cogeneration economical.

ALTERNATIVE ENERGY SOURCES

Eskom's proposed wind energy facility on the West Coast would hold 50 turbines, each 2 MW, for a total output of 100 MW. The turbines would be positioned over an area of approximately 25 square kilometers. The environmental authorization is anticipated soon and Eskom is currently busy with the land purchase negotiations. Subject to the necessary approvals being obtained, the plant could be operational by late 2009.

For a nation with a receptive climate, South African solar energy generation is in its infancy. Eskom plans to build a multimillion rand solar plant that will generate 100 MW. It will be the first major solar energy project in Africa, and will make use of concentrated solar power technology.

Due to the lack of large rivers, large-scale hydropower generation in South Africa is limited. Future developments could include further participation in the Democratic Republic of Congo's Inga III or Grand Inga projects, but costs could preclude this in the medium term.

NEW BUILD

Eskom is implementing an extensive R150 billion ($21 billion) build program, which comprises:

- Re-commissioning three mothballed coal-fired power stations (Camden, Komati and Grootvlei) by 2011
- Completing construction of two open-cycle gas turbine stations (Ankerlig and Gourikwa) by 2008
- Upgrading and refurbishing Arnot coal-fired power station by 2010
- Constructing Medupi dry-cooled baseload power station by 2015
- Constructing Ingula pumped storage power station by 2012
- Constructing Bravo baseload power station by 2016

Nuclear energy offers the best prospect of cleaner fuel and will make up 15 percent of Eskom's energy mix by 2025 to supply half of the expected 40,000 MW additional electricity Eskom expects to generate.

Westinghouse and Areva are the pre-qualified bidders for Nuclear 1, the first of four proposed nuclear power stations. This is part of Eskom's R1 trillion plus ($143 billion plus) expansion program to 2025. The proportion of electricity generated from coal would fall to less than 70 percent by 2025, down from the 86 percent ratio of Eskom's current energy mix.

Also on the nuclear technology front, the South African government is developing the Pebble Bed Modular Reactor, which entails further development of an earlier German design that uses helium as the coolant (rather than water) and graphite as the nuclear reaction moderator. The design is small and modular, resulting in shorter construction time. This combination could provide energy and a host of ancillary development across South Africa.

FUNDING EXPANSION

A crucial building block of Eskom's planned new build program is the financial capacity to sustain the expansion. In the 2007 annual report, Jacob Maroga, Eskom's CEO said: "Our current strategy is to fund up to R100 billion ($14 billion) in borrowings (local and international) and the balance of R50 billion ($7 billion) from our own operations." (*Eskom Annual Report* 2007) Although the government announced a loan of R60 billion ($8.6 billion) in the 2008 budget, it seems Eskom would still need to borrow a significant amount from capital markets.

Standard & Poor warned if the capital expansion was financed entirely by debt, it would materially weaken Eskom's credit profile, even with a sizeable increase in tariffs. (*IOL*, Feb.12, 2008) On March 26, 2008, Eskom announced a "revised plan" that provides for total new build capacity of 14,759 MW (down from 17,643 MW) by 2017 (previously 2015), at a cost of R300 billion ($43 billion), but no details of funding have been announced, pending the outcome of their request for a tariff price hike. (*Pretoria News*, March 27, 2008) Eskom's Brian Dames warned the utility could be forced to "cut back or even halt certain of its projects if it was unable to secure adequate revenues, which could only be achieved through a substantial increase in electricity tariffs, or material shareholder support." (*Creamer Media*, April 3, 2008)

SOUTH AFRICA WILL RISE TO THE NEW CHALLENGE

There is no doubt that the electricity crisis has shaken South African society and rocked the economy, but South Africa rises well to a challenge. The country that, against the world's expectations, was able to make a peaceful transition to democracy, will have to prove its mettle again by overcoming this crisis. The electricity outages have provided the stimulus to fast track new electricity generation technologies and innovative solutions, opened the door for independent power production and cogeneration, and made the entire country more energy conscious.

Westinghouse invited George van der Merwe, a South Africa-based independent writer/researcher specializing in technology issues, to write on the country's energy issues. He can be reached at ***georgevdm@iafrica.com***

Modernization Work at South Africa's Koeberg Nuclear Power Station

Westinghouse Teams with Local Partners

By Luc Van Hulle, Westinghouse Nuclear Services

Since 2005, Westinghouse has been partnering with local companies to perform a series of modifications at Eskom's Koeberg Nuclear Power Station (KNPS). The work was awarded to Westinghouse following the first opening to a market bid since the plant was built in 1984. Eskom made the decision following a safety re-assessment which showed that, while the KNPS design, which is based on its reference plant, the Electricité de France (EDF) CP-1, met the current safety and licensing requirements, its design level of safety could be improved. Prior to this, the first work batches (2 and 2A) were awarded to AREVA as a sole source original equipment manufacturer (OEM) contract. Westinghouse is performing the Batch 2B, 3 and Open Items work as architect-engineer and second OEM. The contract work awarded to Westinghouse can be categorized as: containment safety enhancement, equipment qualification, reliability enhancement, plant operating under accident conditions, protection against hazards, and modifications identified by EDF during their second safety assessment.

Westinghouse successfully completed the installation of all Batch 2B modifications during the 2007 and 2008 outages of Units 1 and 2, respectfully. These outages equally included the technically complex inspections on the primary circuit welds. The inspection project, about which KNPS expressed its highest satisfaction, is a reflection of Westinghouse's practice to draw on its global resources while concurrently partnering with local companies. The weld inspections were led by the Westinghouse subsidiary Wesdyne, from its Mannheim operations, and equally included the expertise and participation of Westinghouse personnel from Nivelles, Belgium; Madison and Windsor, United States; Täby, Sweden; and partner De-Tect Unit Inspection of South Africa. The team used both automated ultrasonic and radiographic inspection techniques. Mechanized inspection of austenitic and dissimilar welds is a regulatory requirement. Therefore, the team used the automated ZAQUS ultrasonic inspection system with its companion VISUS analysis software, together with the JNA scanner supplied by Wesdyne Mannheim, to inspect the austenitic primary loop branch nozzle welds. The automated ultrasonic inspection of the dissimilar metal piping welds was performed using procedures qualified by the Electronic Power Research Institute's Performance Demonstration Initiative to meet ASME Section XI, Appendix VIII performance demonstration requirements.

Also during the 2007-2008 outages, Westinghouse performed critical walkdowns in both units to prepare for new contract work awarded by KNPS to perform 13 safety backfitting modifications and a spent fuel pit cooling enhancement system installation. This phase of the safety backfitting work involves the management, engineering, resource procurement and construction of the awarded plant modifications during planned unit outages from December 2008 through 2010 and builds upon previous phases, as well as feasibility and conceptual studies. Westinghouse will again draw upon its specialists from Spain, Germany, Belgium and the United States, and this time will partner with South Africa-based Nuclear Consultants International.

These experts will perform such technical activities as upgrading the:

- fuel transfer system;
- polar crane;
- plant systems, including safety injection accumulator venting, steamline safety valve alarms and station blackout mitigation systems; and
- electrical and mechanical system components, including qualification of residual heat removal valves and the addition of DC switchboards.

In our joint endeavor to help Eskom best achieve its goals and objectives relative to nuclear safety, plant availability, economic overall efficiency and transformation, Westinghouse has also been deeply involved in the areas of:

- Emergency operating procedures and severe accident management guideline development;
- Training – nuclear engineers' courses, grooming of Eskom engineers, and Nuclear 1 staff training;
- Field services, such as foreign object search and retrieval, fuel handling, mechanized inspections and bottom-mounted instrumentation inspections; and
- Performing outage optimization studies, including work on operation at reduced inventory or mid-loop.

As expressed via its investment in South Africa, both at Koeberg and the newly established Westinghouse Electric South Africa operations, South Africa's success in meeting its energy needs is important to Westinghouse.

For additional information concerning Westinghouse operations at KNPS, please contact either Luc Van Hulle, Nuclear Services customer project manager at +32 67.28.84.33 or van-hulle-l@notes.westinghouse.com or Derik Wolvaardt, Nuclear Services resident site manager for KNPS at +27 21.550.4415 or wolvaaf@westinghouse.com

Westinghouse draws upon its specialists from Spain, Germany, Belgium and the United States and partners with local specialists in South Africa for various projects at Eskom's Koeberg Nuclear Power Station.

Q&A with Rita Bowser,

Westinghouse regional vice president, South Africa

By Ron Hudok, Westinghouse Employee Communications and Community Relations

With South Africa's booming growth in energy-intensive industries, continued work in increasing the percentage of residents receiving electricity in their homes and the country's need to close its growing energy gap, Westinghouse has increased its involvement and presence in the South African energy market. Some pertinent questions are answered by Rita Bowser, regional vice president of Westinghouse Electric, South Africa.

What is the Westinghouse presence in South Africa – how many workers does the company employ there, where are they located and what are their areas of specialty?

Westinghouse has about 150 permanent employees in South Africa. In November 2007, Westinghouse acquired IST Nuclear (now called Westinghouse Electric South Africa), an instrumentation and control company that supports the Pebble Bed Modular Reactor development program. We also have a presence at the Koeberg Nuclear Power Station, which supports both field services and nuclear fuel.

We've all seen the projections for increased electricity demand around the world. In South Africa, that demand seems especially urgent. Why?

In the past decade, the growth in South Africa has been phenomenal, and is projected to continue at this blistering rate for some time. Industrial growth has included energy-intensive businesses such as aluminum smelting. This is on top of a base of mining, and some manufacturing. In addition, domestic consumption has increased to match the electrification of homes.

What is the timeframe for the South African utility, Eskom, to select the supplier of its new nuclear power stations?

Eskom is conducting a significant build program, including pulling coal plants out of a mothballed condition. However, new baseload will really be what's required in the long term to fill the growing demand-supply gap. Eskom will be making a decision on a supplier for new nuclear build as quickly as possible, as it knows it can't afford to delay based on projected growth and demand curves.

Is nuclear power envisioned to be the cornerstone of future electricity generation in South Africa? What other energy sources will be a part of the mix?

South Africa is a fortunate country in many respects. It has vast coal reserves, and a substantial coal to oil program, which has been a basis for energy in the past. Hydro is only a small part of the mix, because the country does not have significant water resources. As part of the build program, gas, wind, solar and more nuclear are all being added to the mix. In addition, Eskom has implemented a significant demand-side management program. With some of the world's cheapest energy prices and available capacity, demand management was in the background. Now, everyone is being asked to do their part to conserve, while the capacity is enhanced.

You've spent considerable time scouting local manufacturers. What type of operations have you visited? What are your impressions of their capabilities? Any surprises?

I have really had a positive experience over the past year, visiting and evaluating several manufacturing facilities. The mining industry has led to the development of significant capability. To support the AP1000™ nuclear power plant design, I was working with our team to identify both potential component and potential module manufacturers. There were several good surprises. Many manufacturers are ISO 9001 certified, and are quite interested in establishing ASME certifications as well. The Nuclear Industry Association of South Africa, on whose board I sit, hosted a manufacturers' workshop for which it had double the expected turnout. This is a can-do country, and I am certain that Westinghouse's localization program to develop nuclear capabilities in South Africa will be developed with the same success that it has been in Korea, China, France, Japan and elsewhere around the world.

What opportunities does the nuclear renaissance present to these companies and their workers?

South Africa has set a goal to have a self-sustainable nuclear industry, in partnership with its nuclear supplier. Westinghouse is working to localize both manufacturing and skills development such that it helps South Africa to accomplish these objectives, but this is also a part of Westinghouse's fundamental value proposition. Westinghouse expects to provide training, coaching and mentoring in a systematic way, built on its technology transfer experience elsewhere, and built on its local expertise base in South Africa. In addition, Westinghouse and Shaw have teamed with the premier South African construction company, Murray & Roberts, which has a depth of experience in delivering on these localized construction programs in South Africa. Murray & Roberts' advice and participation have been invaluable in shaping what Westinghouse believes is the right localization program for South Africa. Our team is called "N-Powerment," a combination of "Nuclear" and "Empowerment" of the workforce.

Are there other partnerships key to Westinghouse's future in South Africa?

Westinghouse has recently signed an agreement with Necsa, which has been tasked by the government to develop a fuels program to support the 20,000 MW of new nuclear build. Necsa also has been tasked as the manufacturing center of excellence, and is obtaining its own ASME Section III certificate, making this an important alliance. Westinghouse is also working with several education institutions, such as Northwest University, to ensure that human skills can meet the country's growing needs.

Westinghouse has been active with the Pebble Bed Modular Reactor for some time, what is the status of the project?

The Pebble Bed Modular Reactor is moving from the design phase to the licensing and demonstration phase. Westinghouse Electric South Africa has been a principal force behind the Helium Test Facility, where many of the final issues associated with the high-temperature gas reactor are being resolved. It is an impressive facility, and a precursor to the actual demonstration plant, which will be built at the Koeberg site.

What distinct roles can the AP1000 and Pebble Bed Modular Reactor play in South Africa's energy portfolio?

AP1000 and the Pebble Bed Modular Reactor are good complements for one another. AP1000 is well suited for baseload at coastal sites or large industrial centers inland. The Pebble Bed Modular Reactor is smaller and does not require much water, making it well suited for dryer sites inland, where transmission infrastructure may otherwise present problems.

Westinghouse is truly fortunate to be a part of these dynamic times in South Africa, and to work with a nation so committed to the prosperous future for all of its citizens. Every day when I go to work, I really feel lucky to be part of such an opportunity.

Rita recently relocated to South Africa to carry out her duties as the Westinghouse regional vice president for South Africa ... she shares a practical lesson she learned about the country's wildlife.

I was at a conference at a resort in South Africa. During one of the breaks, I was in my fifth floor room diligently working on my computer, near the windows. I heard a rattling sound, and looked up to see a full-sized baboon breaking into my hotel room. I had visions of this wild baboon rummaging through my suitcase, stealing my earrings – so I felt that I had to defend myself. I swatted him with a pillow, slammed the window shut and learned an important lesson about wildlife in South Africa!

For more information,
contact Rita Bowser, Westinghouse regional vice president, South Africa
at +27 12.621.4160 or by email at bowserrc@westinghouse.com

Westinghouse Fuel Manufacturing System

The tool for manufacturing excellence

By Jackie McCoy, Westinghouse Nuclear Fuel Columbia Communications

Since the Institute of Nuclear Power Operations (INPO) approved the Zero by 2010 Initiative in 2006, the demand for defect-free fuel has never been greater. The goal to achieve operations with zero fuel failures by 2010 is concurring with a marked worldwide increase in demand for nuclear energy – many more plants are planned to be built – and all will require high-performing fuel.

Safe product flow: Reliable and predictable operation of man, machinery and material to meet our customers' expectations.

Poised to better meet customers' needs, current and future, Westinghouse also launched a new, related initiative in 2006 – the Westinghouse Fuel Manufacturing System (WFMS). The WFMS sets the stage to provide what our customers require: standardization that results in precise quality, long-term performance, security of supply, and value-added fuel products and services.

The WFMS is a business practice model that, for the first time, unites best practices from the nuclear and manufacturing industries in an integrated system. Using the tools of Westinghouse's Customer 1st program, WFMS is enabling sustainable improvements across the operations of our entire fuel value chain. These improvements position Westinghouse to meet increasing customer demands, while also contributing to defect-free fuel.

The WFMS model is built on a foundation of the following fundamental processes:

- Organizational foundation
- Organizational improvement
- Training and learning
- Human performance
- Work management
- Equipment reliability
- Operations focus

(See sidebar on page 17.)

These processes are largely framed around the INPO performance objectives and criteria used for evaluation of operations, maintenance and support functions at nuclear facilities. Westinghouse has performed INPO-style peer reviews of manufacturing operations since 1999, though without the focus of a consistent performance improvement approach, which is the heart of WFMS.

This WFMS structure provides a holistic method to business optimization. Rather than concentrate efforts on various aspects of business operations separately, WFMS integrates the fundamental processes based on their relationships and dependencies on one another. The outcome is safe product flow and manufacturing excellence.

HOW IT WORKS

Each fundamental process has an implementation plan that is realized through work packages, which outline the established best-practice standard. Each work package provides the underlying theory and key steps needed to implement the fundamental process successfully. And each fundamental process produces deliverables that, in turn, produce business practice and operational improvements.

PUTTING WFMS INTO PRACTICE …

Westinghouse has produced more than 100 work packages to consistently deploy WFMS across six different sites in three countries, with the intent to extend the tools and methodologies to key suppliers as well.

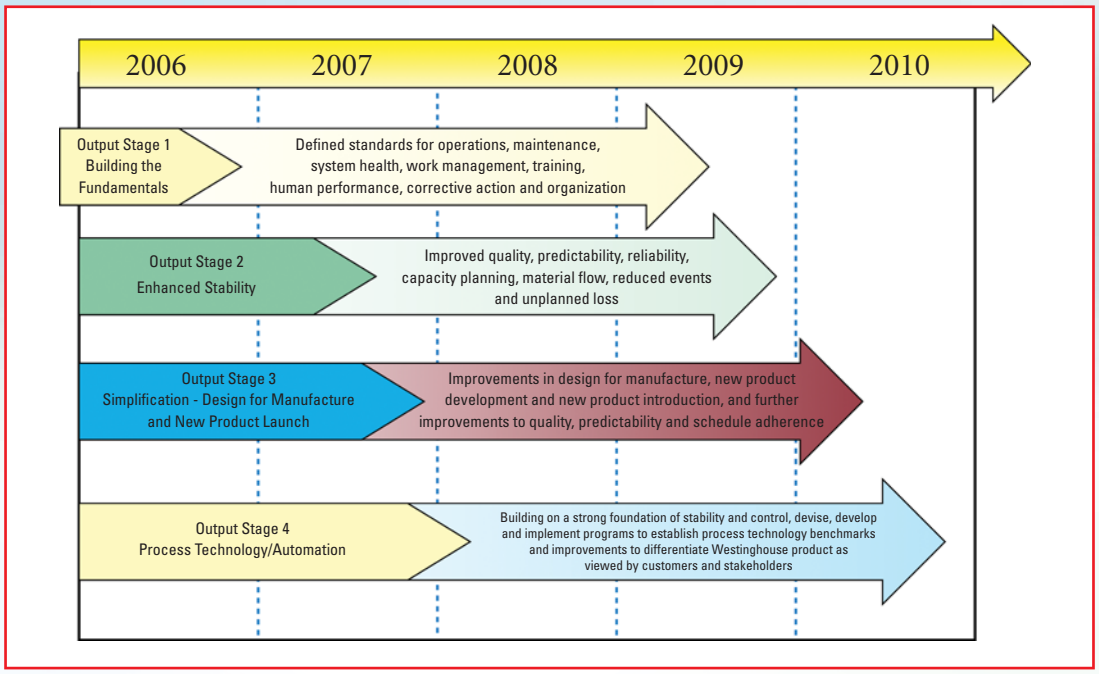
A project-based approach has been developed, such that the site implementation is locally owned but centrally coordinated to ensure implementation remains on schedule and that the desired benefits are being achieved. At each site, process owners are responsible for implementing the WFMS, and a core team of experts responsible for work package creation guides and assists them with implementation efforts. Site employees receive the appropriate level of training on WFMS work packages applicable to their specific job activities.

… WITH EXCEPTIONAL RESULTS

Implementation began at the Westinghouse Columbia Fuel Fabrication Facility in February 2007, and by September 2007, all Westinghouse fuel manufacturing sites had commenced their implementation. WFMS has already enabled significant improvements, which have been, and continue to be achieved through the program's engagement of employees at all levels of the organization, from front-line workers to plant managers.

For example, at the Columbia Fuel Fabrication Facility, incorporating equipment reliability and work management best practices from both the nuclear and manufacturing industries via the WFMS work packages, is helping employees to operate more effectively and maintain production-critical equipment. In conjunction with the local operations team and a Customer 1st Greenbelt project, WFMS process improvements made at the site have resulted in measurable benefits within the uranium dioxide conversion process. The result – sustained increase in equipment uptime – which not only increases on-schedule delivery, but also assists in reducing production pressures, a major contributor to human performance errors.

THE FOUR STEPS TO SUCCESS



The visual management center is implemented through the operations focus fundamental at the Westinghouse facility in Västerås, Sweden. Rooted in the methodologies of Lean Manufacturing and the Toyota Production System, visual management and the reporting of emergent issues through a daily process improves the plant's ability to handle emerging issues and prioritize parts movement and maintenance activities to support meeting the planned production schedule.

By applying a skills matrix via the training and learning fundamental and a visual management system via the operations focus fundamental, the Columbia Operations and Product Assurance teams continue to grow their focus on product quality. For example, building from Pareto analyses done through a Customer 1st project, the Grid Area Team has seen a measurable decrease in product scrap, reducing opportunities for quality escapes. Furthermore, all leaders use standard work cards developed as part of the organizational foundation and operations focus fundamentals. The work cards help define what's expected of leaders and ensure that necessary tasks are being accomplished, an essential element of robust process control.

IMPROVEMENTS WILL CONTINUE

Complete integration of the WFMS over the entire Westinghouse fuel supply chain is expected to take two to three years. Across the fuel business, and under consideration for the rest of Westinghouse's manufacturing operations, WFMS blends nuclear and manufacturing industry best practices and standards with the continuous improvement tools, techniques and discipline inherent in the Customer 1st program. Coupled with the pro-active Customer 1st problem-solving approach, the WFMS will assist the industry in meeting the Zero by 2010 Initiative.

For more information, contact Duncan Craig, Nuclear Fuel vice president manufacturing systems and strategy at +44 1772.764472 or craigdj@westinghouse.com

WFMS Seven Fudamental Processes

Organizational Foundation: ensures that competent and committed people are trained, available and in the right jobs, both now and for the future. It addresses the leadership style and culture, providing consistent key roles and responsibilities while also enhancing the skills and values of the organization.

Organizational Improvement: provides a mechanism for self-evaluation, as well as sharing lessons learned from events that occur at Westinghouse locations and from relevant external operating experience.

Training and Learning: develops and sustains a knowledgeable and skilled workforce at all levels of the organization. The process also increases management leadership in, and ownership of, training.

Human Performance: systematically identifies and manages error-likely situations and includes enhancing defenses, as well as a series of behaviors executed in order to minimize the frequency and severity of events.

Work Management: introduces a system of work evaluation and prioritization as a control measure to preclude unplanned critical equipment failures and degradation.

Equipment Reliability: puts into place systems and processes that will prevent unplanned, unpredicted failures of critical plant components and deliver a data-driven equipment life cycle management approach that optimizes cost, performance and productivity.

Operations Focus: defines how a business approaches operations, from the way work is executed to the systems, procedures, controls and visual signals that are adopted to achieve world-class performance.

From No New Nukes to Doubling

The British's New Vision in Energy

The Sizewell B site, among, others, will be available to the sucessful bidder in the United Kingdom's enlivened nuclear energy market.

It was just five years ago that the results of a government-led, in-depth energy analysis effected the United Kingdom's determination that its future energy mix need not include nuclear. While some may have breathed a sigh of relief, in 2002, the U.K.'s Performance and Innovation Unit (PIU) proposed "a radical agenda to enable the U.K. to put itself on the path to a low-carbon economy" and recommended merely that "the door be kept open" on nuclear energy. It went on to advise that the private sector would have to meet the cost of building, running and decommissioning any new plants and disposing of radioactive waste, which many thought would spell the end of the industry.

And with other factors – it temporarily did. In a 2003 energy policy document, *"Our energy future – creating a low carbon economy,"* the U.K. excluded nuclear while simultaneously and for the first time making reductions in carbon dioxide emissions one of the main planks of the country's energy policy. The policy was in line with European Union goals to cut emissions 20 percent by 2020 and with PIU recommendations to reduce them 60 percent by 2050.

It also stressed the equal importance of improving security of supply. Even though over the following two decades the country's existing nuclear plants were due to shut down and had been by far its largest low-carbon energy source, meeting 20 percent of the U.K.'s electricity demand, the government laid a plan to meet goals without it: by growing the renewable energy sector, reducing energy demand and increasing reliance on imported gas. This would also avoid feeding the unavoidable conundrum over who would pay for decommissioning and disposal, which has historically and until very recently been a subject of contention.

At the time, the U.K. government expected that gas supply could rise to meet 70 percent of electricity demand, and planned that it could meet security of supply objectives by increasing the number of potential suppliers with new gas pipelines and terminals.

What a turnaround since then, with the new 2008 policy not only planning the replacement of existing nuclear plants, but Energy Secretary John Hutton stating in March that the U.K. should aim to double nuclear energy's role in the country's electricity supply mix from 20 to 40 percent.

THE CHANGE IN TIDE

But much led up to the new thinking. Although new pipelines and a network of liquefied natural gas terminals were coming on stream by 2007, the limited sources of gas were highlighted when Russia, one of the main suppliers of gas to Europe (although not yet at this stage to the U.K.), threatened to cut off supplies to some of its major customers. The prospect of large-scale replacement of coal and nuclear stations with gas-fired stations run on imported fuel began to raise questions over security of supply that had been thought less threatening in 2003.

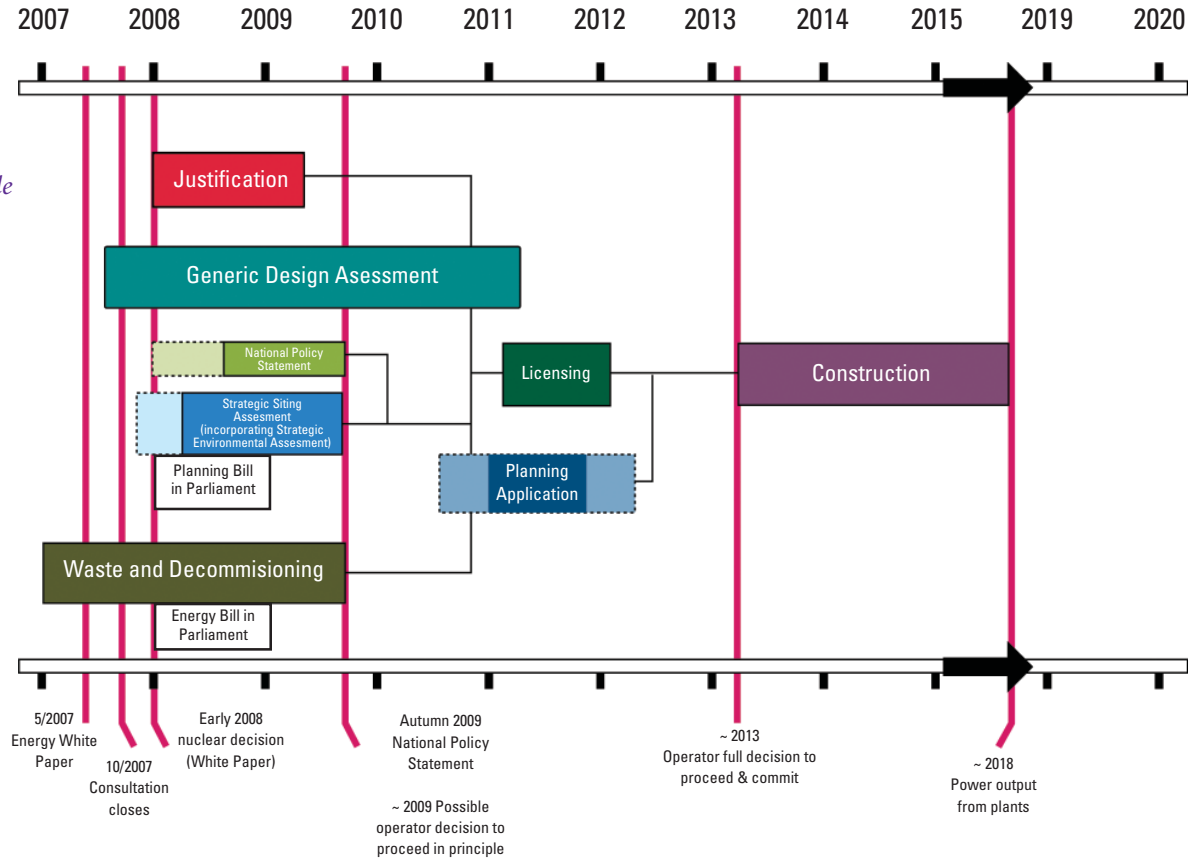
And it became clear that the U.K. was far from unique in planning a wholesale switch to gas-fired generation: across the world countries had similar plans and some big swings in the price of gas brought home just how vulnerable such a strategy was to uncertain fuel prices. What is more, in the winter of 2007-2008, the downside of joining an international market reliant on imported gas became apparent, as shipments originally destined for the U.K. went to other countries willing to pay higher prices.

Complicating the matter was the fact that, despite the goals of the government's energy efficiency and carbon reduction agenda, there was not much of a dent made on the demand side. Annual carbon emission levels remained stable or, in some years, increased, even though electricity sector subsidies for renewables had begun to ramp up installation of new wind farms.

Consequently, energy companies began to point out that building new capacity in increments of a few tens of megawatts, such as was being done with new wind farms, would not be enough to fill an energy gap that would emerge around 2015 and start to widen towards 2020. The growing gap would be caused partly by retiring the existing nuclear stations, and partly by a significant reduction in the U.K.'s coal-fired generating capacity, driven by clean air directives from the European Union that require coal stations to meet exacting new emissions standards. The new standards could see the U.K.'s coal capacity, which currently supplies over 40 percent of electricity demand, cut by half.

By the time the government revisited its energy strategy, it had all but decided that nuclear would be required to meet both energy security and carbon dioxide reduction goals. But this newer decision will not have any practical effect unless the electricity industry is in tune with the change. The government has found a willing partner in the electricity utilities, because although it is true that none has tried to build a nuclear power plant since Sizewell B was completed, it is also the case that the industry has built very little new generation of any kind since a fleet of new gas stations was installed in the mid 1990s. Rebuild was restarted only when the U.K.'s Renewables Obligation, which requires electricity suppliers to source a growing proportion of their power from renewables or pay a fee based on megawatt hours, arose to offer substantial subsidies for wind power.

Based on the U.K.'s Department for Business Enterprise & Regulatory Reform (BERR) timetable of events for the fastest route to possible new nuclear power stations



The Renewables Obligation, along with the European Union's Emissions Trading Scheme, is intended to monetize the effects of carbon dioxide emissions in a way that gives utilities financial incentives to shift to low-carbon generation. And the push was needed as industry had an oversupply of power capacity that allowed it to delay new investment, while the multi-year planning permission process discouraged the construction of any large new buildings for any purpose. The U.K.'s most recent nuclear plant, Sizewell B, was the subject of a public inquiry lasting two years (followed by two further years to await the outcome), and a new transmission line elsewhere took nearly a decade from proposal to construction.

Change to the planning regime that will allow major infrastructure to be considered more quickly is one aspect of the policy framework currently being put in place by the U.K. government to make new nuclear investment possible. Along with planning, it is also addressing the safety licensing process and the arrangements for dealing with nuclear waste. (See sidebar on page 21.)

As a result, other European countries and all the European energy utilities are watching the U.K.'s progress towards new nuclear investment with great interest.

Although two nuclear plants are already under construction in Europe (Finland and France), the special support they receive contrasts with the U.K.'s decidedly competitive energy market. If a new nuclear build is successful in that market and under the U.K.'s strict nuclear licensing administration, it will provide a positive model for other countries.

THE PROCESS IS UNDERWAY….

Yet who will make that investment is not yet clear. The U.K. government, in beginning the licensing process for new reactor designs, asked vendors to back up their submissions with letters of support from utilities. These included utilities like EdF Energy, RWE Npower and E.ON, which all have significant nuclear capacity in other markets and are already major players in the U.K. But designs were also supported by other European

utilities, including Vattenfall and Suez, for which a nuclear stake would offer entry into the British market. It is likely that one or more of these companies would have to form a partnership with British Energy, the U.K.'s only current nuclear power company. The company is still part-owned by the government, which said in March that it would put its 35 percent stake in the company up for sale. Under U.K. takeover rules, that sale would immediately trigger a bid for the entire company. Most of Europe's major utilities have been linked to potential bids in one form or another, but the sale process is not expected to be over until July. And until then, speculation will continue.

British Energy's most important asset is that it owns most of the present nuclear stations. These are mostly aging reactors in the last years of their lives, but they are also the most attractive sites for potential new build, as even with changes being made to the planning process, this option would be easier than developing a new site.

Although it has the most attractive potential sites, British Energy is not the only site owner. The Nuclear Decommissioning Authority (a branch of the U.K. government) owns sites where nuclear facilities are or are about to be closed, and it has a remit to generate income where it can to fund its decommissioning activities. It has also opened discussions with potential partners in recent months and active bidding is in process for its sites.

While site owners and utilities progress in discussions, the safety authority (Nuclear Installations Inspectorate) has reached the end of its first phase of assessment of four potential reactor designs: Westinghouse's AP1000, Areva's Evolutionary Power Reactor, General Electric's Economic Simplified Boiling Water Reactor and Atomic Energy of Canada Limited's (AECL's) Advanced CANDU Reactor. That was too many for the U.K.'s licensing authority (Health and Safety Executive Nuclear Directorate), which wanted to have a shortlist of just three designs to keep the licensing process on a timeline of around three years. Prior to a decision, AECL decided to withdraw from the race in order to concentrate on its home market of Canada.

This summer is likely to see major decisions made by many of the vendors, utilities and site owners working in the United Kingdom. And by autumn we may begin to see the potential shape of new nuclear build there, perhaps setting the United Kingdom on the pathway towards meeting its greener goals.

SETTING THE FRAMEWORK

In order to invest in new nuclear in the U.K., utilities want some certainty in the policy framework under which they would make such large capital investments. While the U.K. cannot guarantee rates of return, it is trying to remove policy and regulatory risk in a way that will ease investment. The licensing process has already been changed. In the past, vendors would submit their designs for an "all or nothing" review, and one where the authority might ask for substantive changes late in the process – as happened at Sizewell B. The new system does not change the authority's ability to require changes but it introduces a stepped licensing process that should allow both vendors and authority awareness of issues that need to be addressed at an early stage. The adoption of standard international designs, such as Westinghouse's AP1000, also helps to provide confidence in the successful licensing of reactor designs. The government also has a bill in the legislative process to debate new major infrastructure projects at a national level. Once in place, the policy will limit the scope of site-specific planning inquiries, also limiting disruption of projects midstream.

Finally, the government is addressing the biggest lack in nuclear policy: a strategy for managing and funding waste arising during plant lifetimes and the decommissioning process when the plant is finally shut down. This has been a major policy problem for many years, in part because the U.K.'s policy of reprocessing spent fuel meant the previous nuclear power program had its origins linked to the defense program, which had huge and growing waste management costs. The U.K. government is also setting out a policy that should see it take on the process of finding and qualifying a waste site for historic wastes. In the process, it should at last be able to fix the costs of waste management for new nuclear operators. The plan is that the new operators will be able to dispose of spent fuel in the government site in exchange for a fixed payment for their "fair share" of costs via a toll paid over the life of their plant. They will also have to set up an independent decommissioning fund for their plants. Both the fixed charge for waste disposal and the definition of "decommissioning" that the independent fund must cover, should emerge from a government consultation during 2009. The process of choosing a waste site will inevitably take years, but progress in this area is an important step to be made before any new plant can start to generate power. Selection of a waste site, according to current timetables put forward by U.K. utilities, should be by 2013, with the first electricity from a new nuclear plant anticipated around 2018.

Westinghouse invited a U.K.-based energy analyst and reporter to write on the U.K.'s new energy policy and current related events.

Springfields – Part of the U.K.'s Security of Supply

By Alan Beauchamp,
Westinghouse
Springfields Fuels Limited
Communications

Westinghouse has welcomed the government's decision to give the green light to a new generation of nuclear power stations in the United Kingdom. David Powell, Westinghouse's Regional Vice-President for the United Kingdom, said: "Westinghouse welcomes the announcement from government that energy companies may move forward with plans to build new nuclear plants in the U.K. As we aim towards a low-carbon future for Britain, without compromising the security of our energy supplies, nuclear power has an important role to play in helping to meet Britain's electricity needs as it has done for over half a century. Over that time, the vast majority of the U.K.'s nuclear fuel has been made at Springfields."

Opponents to the U.K.'s inclusion of nuclear power in the new energy plan question the longevity and security of that supply, and suggest that uranium is no more secure than other forms of imported fuel. Yet the United Kingdom's Nuclear Decommissioning Authority (NDA) currently owns around 51,000 tons of uranium, which could either be directly converted for nuclear fuel or combined with the country's 86.5 tons of plutonium and used to make mixed oxide fuel. (*Meeting the Energy Challenge, A White Paper on Nuclear Power January 2008*, BERR) If these stocks were ever to be used, they alone are estimated to be sufficient to fuel up to three 1,000 MW reactors for 60 years (*Uranium and Plutonium*, Macro-Economic Study, June 2007).

And the country has a history of fuel manufacturing. At its Springfields site, which is owned by the NDA and operated by Springfields Fuels Limited, under the management of Westinghouse Electric U.K. Limited, Westinghouse produces enough fuel to supply approximately 79 percent of the nuclear fuel used to generate electricity in the U.K. While the question of security of supply is bigger than Springfields, its connection with Westinghouse could prove even more advantageous in years to come.

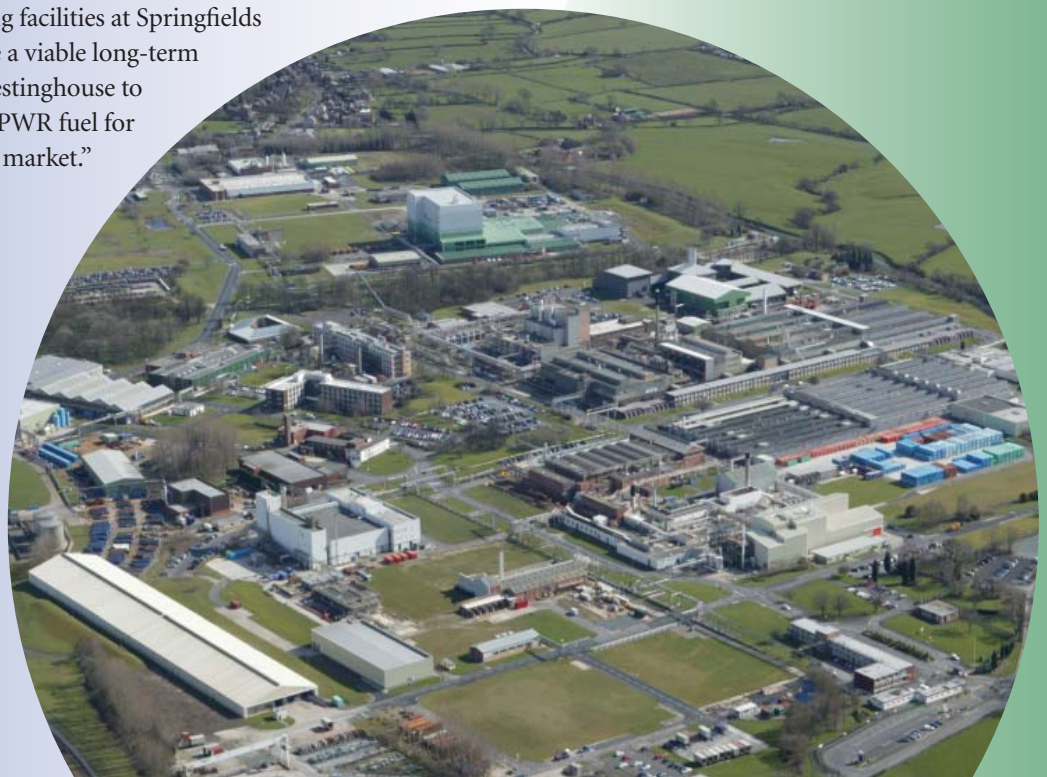
Westinghouse is a single-source fuel provider for pressurized water reactors (including the Russian VVER), boiling water reactors, and advanced gas-cooled and Magnox reactors worldwide, and has an approximate 70 percent ownership stake by Toshiba, which is exploring an alliance with Atomentergoprom this spring. The Russian company also enriches uranium for nuclear fuel. Combined with the ability of British Nuclear Fuel to manufacture mixed oxide fuel at Sellafield, the United Kingdom should enjoy even greater security of the nuclear fuel supply.

In fact, Springfields Fuels Limited's Managing Director Mike Tynan feels more than certain about the fuel supply, stating that Springfields' supply may extend beyond the U.K.'s fuel market. "As nuclear energy also enters a renaissance worldwide, our fuel manufacturing facilities at Springfields could provide a viable long-term facility for Westinghouse to manufacture PWR fuel for the European market."

In addition to providing chemical and mechanical fabrication of nuclear fuel, the site also provides conversion services for uranium hexafluoride, supplying intermediate products, such as uranium dioxide powder, for several overseas customers in Europe, Canada and Japan. And in spring 2008, Westinghouse signed a contract extension with Spain's Enusa Industrias Avanzadas SA to provide uranium dioxide conversion services until 2012.

Westinghouse and the NDA are committed to excellence in safety and operations at Springfields. Through a program of innovation and development, they will ensure that the site is well positioned to take advantage of the opportunities that arise both in the U.K. and across the globe. The Springfields site is destined to remain at the heart of the United Kingdom's nuclear power program for many years to come.

For more information, contact Mike Tynan, Springfields Fuels Limited managing director at +44 1772.762021 or michael.w.tynan@springfieldsfuels.com



Springfields is one of the most advanced nuclear fuel manufacturing plants in the world.

Watts Bar

TVA Had Last Unit in U.S. to Come Online Last Century … And Will Have One of the First This Century

by Terry Johnson, Tennessee Valley Authority

Westinghouse plans to install the improved and simplified control rod drive mechanism cooling system and perform tests to confirm operability.

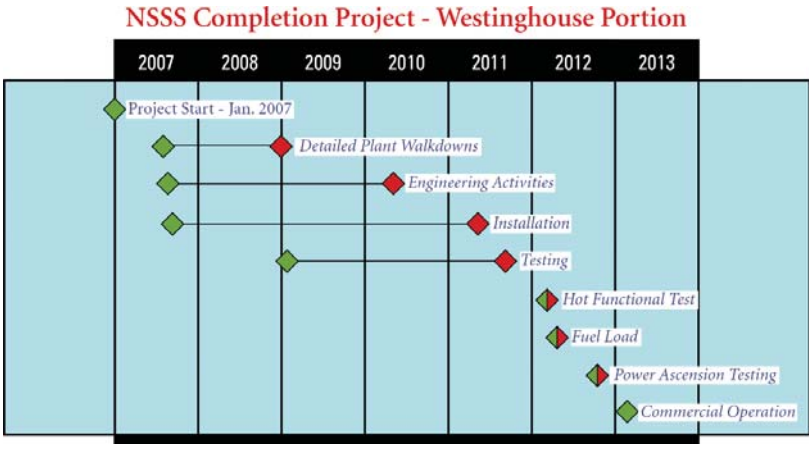
Named for a sandbar at Watts Island, Watts Bar is a site where falling water, burning coal and splitting atoms have all powered electricity generators. When Watts Bar Unit 1 began commercial operation on May 27, 1996, it became the last commercial reactor to come online in the United States during the 20th century. And now Westinghouse is helping the Tennessee Valley Authority (TVA) complete the second nuclear unit there, making it one of the first to come online in the 21st century.

"With a rising demand for more baseload generation, TVA restarted Browns Ferry Nuclear Unit 1 in June 2007, and the success of that recovery project helped us understand what it would take to complete Watts Bar 2," says Ashok Bhatnagar, Senior Vice President of TVA's Nuclear Generation Development & Construction. Bhatnagar adds, "Before deciding to complete Unit 2, TVA refined and repeated the process used to determine the feasibility of the Browns Ferry 1 recovery. This detailed scoping, estimating and planning (DSEP) process determines the need for a project, identifies the specific work required and determines the associated costs, schedule and personnel needs."

In July 2006, the TVA board of directors authorized a DSEP for completing Watts Bar 2. With the results of that evaluation and an updated environmental review, and with much of the staffing and infrastructure already on-site for Watts Bar 1, they authorized the completion of the unit in August 2007.

"Completing Watts Bar Unit 2 puts an existing asset to work for TVA customers and provides a clean, safe and reliable source of affordable power to the people of the Tennessee Valley," said TVA Board Chairman Bill Sansom, when voting to authorize completion of the unfinished unit. "The studies clearly show that completing this unit is without a doubt TVA's best option to help meet the region's growing power needs."

TVA is working with the Nuclear Regulatory Commission to coordinate the completion of the construction permitting and licensing of the plant. Licensing will be completed under the provisions of 10 CFR Part 50, the process used for all operating commercial nuclear power plants in the nation. TVA has requested to extend the construction permit for Unit 2 and expects to request an operating license before April 2012. The goal is to have the reactor at full power by 2013.

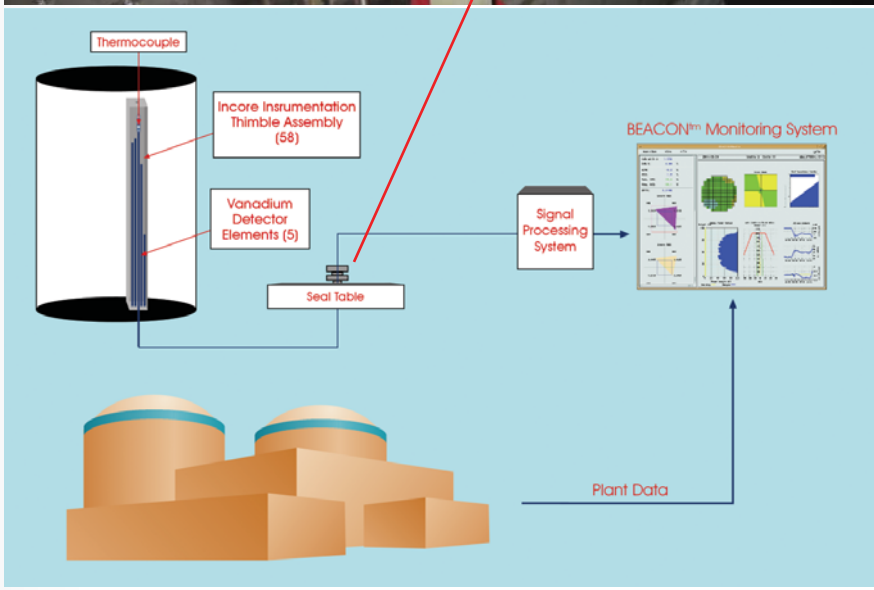


Part of the Westinghouse NSSS work includes removing this in-core monitoring system and replacing it with the Westinghouse In-core Information Surveillance & Engineering (WINCISE™) System for continuous three-dimensional core power distribution measurement and reduced dose and critical path time.

Unit 2 is estimated to be 60 percent complete and completion will include work to refurbish or replace some components. It is estimated it will cost about $2.5 billion for the five-year construction project that will add 1,180 MW to the TVA power system. Approximately 2,300 contract workers will be working on-site during the height of construction. In addition to the Westinghouse contract for the nuclear steam supply system (NSSS) work, Siemens is performing the turbine and generator work, and Bechtel is providing the overall project management including the engineering, procurement and construction. Operating and maintaining the second unit will result in about 325 additional permanent TVA jobs at the plant. Hiring commenced in 2007 to begin filling the training pipeline for the operating, engineering and maintenance staff.

TVA operates six nuclear units at three sites – three boiling water reactors at Browns Ferry Nuclear Plant in Athens, Ala., U.S., and three pressurized water reactors at Watts Bar and Sequoyah nuclear plants in Tennessee. With the Tennessee Valley's economy and electricity demand continuing to expand about two percent every year, in addition to completing Watts Bar 2, TVA is also stepping up energy efficiency and demand-response efforts to help curtail the rising power demand.

TVA is the nation's largest public power provider and is completely self-financing. TVA provides power to large industries and 159 power distributors that serve approximately 8.8 million consumers in seven southeastern states. TVA also manages the Tennessee River and its tributaries to provide multiple benefits, including flood damage reduction, navigation, water quality and recreation.



For more information on Westinghouse's work on Watts Bar Unit 2, contact Greg Gisoni, Nuclear Services vice president & project director Watts Bar Unit 2 at +1 412.374.6515 or gisoniga@westinghouse.com

Welding and Machining Expertise

Positioning Westinghouse to Support a Full Range of Customers

By Kathy Szlis, Westinghouse Nuclear Services Communications

This Westinghouse-developed low profile weld head saves removal of large support structures during weld overlays – saving plants cost, shortening repair times, and decreasing dose to plant personnel.

Late in 2007, Westinghouse Electric Company expanded its welding and machining expertise with the purchase of Carolina Energy Solutions and the creation of a new subsidiary – WEC Welding and Machining LLC. This welding and machining services arm of Westinghouse serves the nuclear, fossil, waste-to-energy, petrochemical, gas and general fabrication industries.

In addition to Carolina Energy Solutions, WEC Welding and Machining holds PCI Energy Services, a leading supplier of specialty welding and machining services to the nuclear power industry; WEC Machining Equipment, LLC; and the WEC Welding Institute.

WEC Machining Equipment is the largest specialty tool designer for the nuclear power industry with focus on electrical discharge machining (EDM), mechanical discharge machining and customized tooling. Because of industry growth and the predicted shortage of welders in the coming years, the WEC Welding Institute uses classroom and hands-on training to certify new welders with the skills needed to effectively support Westinghouse customers. WEC Welding and Machining and PCI are located in Lake Bluff, Ill., U.S.; the other components of Westinghouse's welding and machining business are based in Rock Hill, S.C., U.S.

WEC Welding and Machining positions Westinghouse well to support a broad spectrum of services, from construction and operation of new plants to special projects for both nuclear and non-nuclear applications. These projects include such first-of-a-kind work as that completed last year on one of British Energy's advanced gas-cooled reactors. Partnering with R. Brooks Associates, WEC Welding and Machining custom-designed and deployed an EDM tooling system to provide an access port in the reactor's boiler closure unit, and to facilitate inspection of the wire winding system. The access allowed R. Brooks Associates to excavate fillite material and expose the target area for visual inspection and assessment of the wire winding system. The customer reported, "… this project has been particularly demanding and all parties involved have worked exceptionally to reach where we are today."

One of the recent non-nuclear projects directed by Carolina Energy Solutions was the first major installation of 2507 super duplex stainless steel using Inconel filler material for replacement of a California customer's existing carbon steel pipeline. The pipeline, which is 14,000 feet long, requires more than 600 welds on a difficult material in adherence with stringent criteria. Carolina Energy Solutions successfully met very stringent customer-established weld properties by repetitively producing 100 percent flawless X-ray welds. This project was recently completed more than one month ahead of schedule.

WEC Welding and Machining also specializes in structural weld overlays (SWOLs), which are designed to overlay new weld material on Alloy 600 weld material that had been used previously in the industry. The SWOLs are aimed at mitigating potential weld compromises with the Alloy 600 material. Westinghouse began the fall 2006 outage season with experience, having designed and successfully installed the industry's first pressurizer nozzle SWOL repair in spring 2005, and having successfully completed another in the fall of the same year.

Challenges with the SWOL process were rigorously addressed using Westinghouse's Customer 1st process, and by spring 2007, Westinghouse had completed 30 pressurizer nozzle SWOLs with nearly flawless results at six U.S. nuclear plants. Another six overlays were successfully completed in fall 2007. Callaway Pressurizer Overlay Site Project Manager Dan Stepanovic said, "There were a lot of smiles – mine the biggest – when the last of the ultrasonic examination results came in and I could announce to station management that the pressurizer overlay was complete, on schedule and under dose budget. There were no recordable safety incidents and no recordable indications on any of the nozzles … without your [Westinghouse] effort, success wouldn't have been possible."

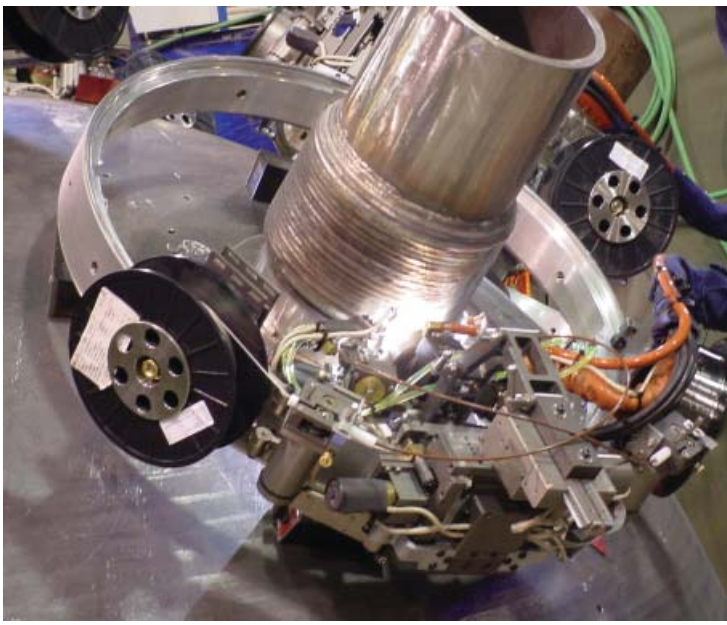
While working to apply lessons learned and improve the company's performance for spring 2007 and beyond, WEC Welding and Machining also developed and qualified new "low profile" welding heads. This significant development allows plants to avoid removing large support structures that often interfere with standard welding systems and add to the cost, schedule and dose intake for overlay repair programs. Successful SWOL operations continue in 2008 and WEC Welding and Machining's objective is 100 percent first-time-weld quality for all projects.

WEC Welding and Machining broke performance records during a steam generator replacement and reactor vessel head replacement outage at Comanche Peak last year. The breaker-to-breaker outage was completed nearly 10 days ahead of schedule and shattered earlier world records by nearly the same number of days. Westinghouse completed 21 rod control services and main steam welds with zero indications and six pressurizer nozzle welds with zero rejectable indications. Rafael Flores, site vice president, Comanche Peak Nuclear Power Plant (Luminant Power) said, "I am extremely impressed with the pre-planning that was performed by the Westinghouse and Comanche Peak team. Both groups worked together towards a common goal that had safety as the number one priority. Great teamwork was observed throughout, along with excellent execution."

Addressing process challenges during SWOLs allowed the improvements needed for Westinghouse to complete 30 pressurizer SWOLs with nearly flawless results at six U.S. nuclear plants in spring 2007, and an additional six in fall 2007.

Westinghouse's welding and machining capabilities and experience are critical to the safe and efficient operation of existing plants, and they will be equally vital to planned new plants. Jimmy Morgan, president, WEC Welding and Machining, stated, "Our ability to now work in multiple industries, as well as to train a new generation of workers for the future, really separates us from our competition. Our new organization is well positioned to grow as the future demands will outpace the supply of qualified workers in the industry. We are doing everything we can to get ahead of the curve and be prepared as the nuclear renaissance begins."

For more information, contact Steve Mondrowski, general manager of Marketing & Sales, WEC Welding and Machining at +1 847.990.7519 or mondrosa@westinghouse.com



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