

Bygone Days

Huddersfield PS – Pelaw House - Becca Hall – National Control – System Coordination - PowerGen

By Joe Hirst

The opening lines of a docudrama often state that names have been changed and events simplified to enhance dramatic effect. Not so in this case, but I have to admit my recollections rely on a fading memory.

Like many before me I left school at 16 and in 1958 I joined the CEGB as a Student Apprentice based at Huddersfield Power Station. Why did I choose the CEGB, well a family friend was an electrician at the power station and as far as my parents were concerned he had a “good job”, he must have had he could afford his own house.



We lived with my grandmother in a council house, my dad being a plant attendant in a dye works and my mum a mender in the mill. The normal school leaving age at that time was 15, but I was allowed to stay on an additional year to do by GCEs, but staying on until 18 to do ‘A’ levels and possibly go on to university was out of the question; I had to start to pay my way. My first weekly wage was £2.3s.6p. Not much, but a welcome contribution considering my father’s wage was not much more that £10 a week and my mother’s noticeably less.

Huddersfield



Huddersfield Power Station had two 30MW generators and two older 20MW machines. It was a range-station with eight chain grate boilers.

It had started life as the town’s incinerator, burn rubbish and producing electricity. Sometime in the 1930s the two 20MW machines that became the LP end of the power station were built adjacent to the incinerator. In the early 1950s the two HP 30MW generators were added.

It was an unlikely location not far from the centre of town, yes it was on the banks of the River Colne, at least the cooling towers were, but the power station itself was next to the gas works on the other side of St Andrews Road, the main southern bypass for Huddersfield. As the maintenance buildings were also on the river side of the road it was a bit of a challenge crossing the main road several times a day, particularly if moving large fans, valves etc. What made the site even more unsuitable for a modern power station was that it had no railway connection, all coal being delivered by lorry.



On my first day I was sent to Huddersfield Technical College to enrol on the ONC electrical engineering course. It was part time day release, one full day and three evenings at college. The evening classes proved a little problematic, not only because I couldn't socialise with my old school friends, but because for the first six months I was sent to Whitehall Road Power Station just down the road from Leeds City Station for basic training. Travelling back to Huddersfield in time to attend my evening classes was a bit of a hit and miss affair. I suppose at this point it was unclear whether I had it in me to complete my studies and become an engineer or finish up as an electrician or fitter. Whitehall Road Power Station had a student's workshop run by Mr Mathews and here we were taught how to employ different engineering techniques and use a variety of machines. We made apprentice pieces, fashioning every little screw and bolt to a standard I now find amazing. I treasure all the pieces I made back then and often think I should put them on display, but I doubt anyone would be interested.

Back at the power station every apprentices' first placement was with the mechanical fitters. The foreman resented having 15- and 16-year olds messing about in his workshop, and we did mess about. He always said children should not be born until they are 21. As a consequence, he gave us monotonous jobs to keep us out of trouble. The worst was turning the coal belt rollers. These under-belt rollers were roughly cast and had to be turned to a smooth finish. In doing so iron dust filled the air. I'm not sure if I was lucky or unlucky because the dust got up my nose and made it constantly bleed. The foreman had little option but to take me off the lathe and find me something else to keep me out of his way. Perhaps out of revenge he made me the mate to the fitter he disliked the most and gave the worst jobs to, working on the river screens in the winter and in the heat of the boiler house in the summer.

One thing I do remember was the comradery of the maintenance staff and it was always my first port of call when I wanted to get away from any of my future placements. I'd just gone 18 and was chatting to welder and showed him a letter I'd just picked up from the office. It was asking if I wanted to join the GEGB's superannuation scheme. What on earth was superannuation? I know my parents would be in the dark so I asked the welder, a man well respected by his peers. He closed the door of his cabin and refuse to open it again until I signed the form and gave it to him. He would take it back to the office. How thankful I became for that small act in later life, particularly when, at the age of 52, I retired with 34 years of superannuated pension. Mind you I don't think my generation of retired engineers fully understand why they were able to have such an advantageous final salary pension. In the early years I contributed very little to the fund but as I was thankfully on a steady career path my final salary was significantly higher than my average salary. The CEGB had a

combined superannuation scheme that included all blue-collar workers. A fitter or plant operator who started work in their teens soon got to the top of their salary scale and thereafter any wage rise was only in line with inflation. They paid in far more as a proportion of what they got out than did the likes of me. A sobering thought.

At the end of the second year I had passed my ONC and instructed to enrol on an HND sandwich course. This education model suited me down to the ground. I attended college for the winter six months followed by six months with the CEGB split into six or three month blocks, each block being in a different department, not only in the power station but also with transmission, the YEB and even in manufacturing at Hopkinson's Valves. Four years later, having passed my HND and the Part 3 entrance examination of the IEE, I was considered ready to start work in a power station.



Now 22 and a General Assistant Engineer, I was included as the relief on the Station Control Engineer's rota.

The LP end of the station generally two shifted but the 30MW machines were then close to base load. Night shifts could drag and so on cold winter nights, when the doorbell rang, you would welcome the bobby on the beat in for a chat and warming cup of tea. But things changed after one enthusiastic officer on leaving booked the shift charge for parking without lights in Gasworks Street.

The control room was also responsible for switching area board circuits. Every Monday, at about 9am one circuit would trip. The best technical brains were called in to solve the mystery. It was then noticed that this was the morning the over-enthusiastic cleaner polished the parquet floor and the circuit in question had an over sensitive trip relay. The technical solution? Paint a white line on the floor in front of all the panels and tell the cleaner not to polish beyond the white line.

What made me feel most empowered was nothing to do with generating electricity but, along with all the other panels, there was one dedicated to the trolley bus supply. That tripped regularly and now I had the power to bring central Huddersfield to a halt.

A small power station, a small control room and one control engineer per shift. I recall one day being taken short and not being able to raise the Assistant Shift Charge Engineer to stand in. What could go wrong if I left the generators to themselves for a few minutes? Well in that few minutes the system frequency fell, the machines responded and when I returned all the machines were now 0.8 lead. Thankfully these old alternators were so copper rich that they remained surprisingly stable, but it was a lesson well learnt.

On another occasion, during the morning pick up, I allowed a new student to synchronise a generators. He was naturally a little hesitant to close the breaker, fearing that if he was a little too early or too late and not quite in sync he would get a sarcastic phone call from the turbine hall asking him to pop down and help them put the generation back on its bed. As a consequence we were a couple of minutes late coming on line. The frequency was on the

low side and I received an irate call from area control at Becca Hall asking what the hell was I doing being late? He was not happy with my explanation. But that phone call made a lasting impression on me and was an influence on my future career choices. Shortly after, when in 1964, a vacancy came up at Pelaw House Grid Control Centre, I began to wonder if I would prefer to be at the other end of the phone ordering people what to do rather than be at the receiving end in the power station. I got the job, but never forgot why I made the move.

Pelaw House.



Chester-Le-Street. Newcastle Grid Control Centre (cc1958)

Pelaw House was a perfect introduction to System Operation. A small area covering County Durham, Northumberland, Cumberland and Westmorland. Alan Storey was the System Operation Engineer and I was appointed a Third Assistant Engineer working for Ron Boydell. Six months later I was promoted to Second Assistant as a Loading Engineer. On my first day in the control room I was asked to shadow George Young. George, a true Geordie, with a habit of fondling your tie as he spoke (yes we all wore jackets and ties in those days). I still recall the first conversation. Right Joe, there's the loading desk. You can't get into any trouble that I can't get you out of so I'm going for a walk round the garden. Call me if you need any help. I was on my own with no one looking over my shoulder. By far the best way to learn.

Then there was the night I was on shift with PEP Phillips. All was quiet and we were both asleep, I was at the loading desk and PEP was laid out on the floor under the switching desk. I was awoken by

a circuit breaker alarm. PEP also stirred as his phone rang which he had strategically placed on the floor beside him. It was the power station engineer asking if he could close the breaker and restore the tripped 132kv circuit. PEP duly obliged and quickly went back to sleep.

That morning my relief was Dereck Mould. He didn't show, when we rang his home his wife informed me he had gone on manoeuvres with the TA so I set about finding a replacement. It was gone 10am when my relief arrived. As I was about to leave I was confronted by Gladys who quietly hinted that there was something wrong with PEP's log. Back then we hand wrote our log and I have to admit we weren't the neatest of writers, so each morning the girls in the office would type it out for the engineers to sign the next time they were on shift. I soon realised the typists knew more about the system than the engineers, because they always knew when the log didn't make sense and usually took it upon themselves to correct it. But on this occasion there was a gap and Gladys couldn't work out what was missing. When I read the log I realised there was no mention of the circuit tripping in the middle of the night and the instruction to restore it. I immediately knew what had happened and asked Ken Morrow to move away from the switching desk so Gladys and I could get on our hands and knees to read what PEP had written on the linoleum under the desk. Gladys added it to the log and all now made sense.

My one and only reprimand came at Pelaw. It was the end of a night shift on the switching desk. A transformer was due out of service for maintenance at Kendal. Back then Kendal was a single 275kv switch substation with two 275kv/132kv transformers. I got a call not long after six from George Hetherington, a well-respected protection engineer. He was early and the transmission engineer wasn't due for another hour. George was keen to get started so he suggested he stick his finger in the transformer protection relay and trip the circuit. That way the transformer protection would be tested, Kendal would be left hanging on a single circuit for less than a minute. The protection would trip the LV and HV breakers at Kendal along with the remote 275kv breaker at the other end of the line, the motorised 275kv isolator would isolate the transformer and DAR (Delayed Auto Reclose) would restore the circuit all in less than a minute. Sounded sensible to me so I instructed him to go ahead. It appeared to work perfectly and we were well satisfied until we got reports of high voltage all across Kendal. The tap changer mechanisms on the two transformers was master/follower, but unknown to anyone the system was faulty and the remaining transformer ran to end tap resulting in high voltage. In my defence, the same thing would have happened even if we had isolated the transformer by the book.

Not long after, came the move from Pelaw House to Becca Hall commenced which would see the Newcastle Control close. To facilitate this Engineers from Becca came to Pelaw to familiarise themselves with the system, one such engineer being Ben Bow. It wasn't unusual for these engineers to be dazzled by the bright lights of Newcastle and Ben was no exception. After a night out on the town he was heading back to the hotel worse for wear when he flagged down what he thought was a taxi on Tyne Bridge. As he tried to get into the passenger seat the driver asked him politely if he realised, he had flagged down a police car.

Becca Hall

Having only rented a flat in Gateshead, and being able to live with family back in Huddersfield, I was asked to be the first from Pelaw House to relocate to Becca Hall in readiness for the final move.



Becca Hall

Aberford Leeds

The move that went surprisingly smoothly with few hiccups, there was, however a clash in culture, be that because Pelaw was a small tight knit group with an open relationship with the management, or perhaps it was just a clash brought about by the Yorkshire disregard for authority. It came to a head one Saturday. For several years it had accepted that a junior engineer would take orders for lunchtime fish and chips and head down the back lane into Aberford to collect the order. This Saturday ex-Pelaw Jeff Armstrong was the Senior Control Engineer and he was decidedly uncomfortable in sanctioning this practice so he did the Pelaw thing and contacted management. Clearly they had to say no, even though they knew the practice was common. This didn't go down well with the Becca contingent. It didn't turn into a major crisis and no time at all normal service was quietly resumed.

Thankfully in 1969 I was on shift with Tommy Owen on the February night my son was born. No paternity leave in those days. As my wife went into labour I called the midwife and as soon as she arrived I shot off for work. A 2am phone call announced the birth of my son. Tommy would cover and allowed me to set off home in the driving snow to see my wife and son, provided I was back at my desk in time for the morning pickup which I just made.

A second late night dereliction of duty occurred one evening shift. All was quiet and it was decided it was time for a beer. I collected the relevant monies (look I'm a Yorkshire man

and credit is anathema to me) and set off to the Fox and Grapes on York Road. Well I thought I might as well have a pint whilst I waited. The pub had just installed a colour TV and The Glen Miller Story was on. I got a bit too engrossed and after it ended I realised I'd missed shift change over. I shot back, beer in hand, and was welcomed with open arms by the night shift but was not in the good books of my evening shift colleagues.

During the changes at Becca to accommodate Pelaw the end panel of the switching diagram had to be removed to extend it. The end panel was a polished mahogany, perhaps twelve foot high and three foot wide, curved at the sides. It was too long or perhaps just too heavy to get out of the control room, so it was placed behind the loading diagram. Sometime later, just as it was to be refitted, it could not be found. It is unlikely it could have been removed without being cut up into, shall we say "coffee table sized pieces", so how was it smuggled out of the control room without anyone seeing. Now is the time to own up!

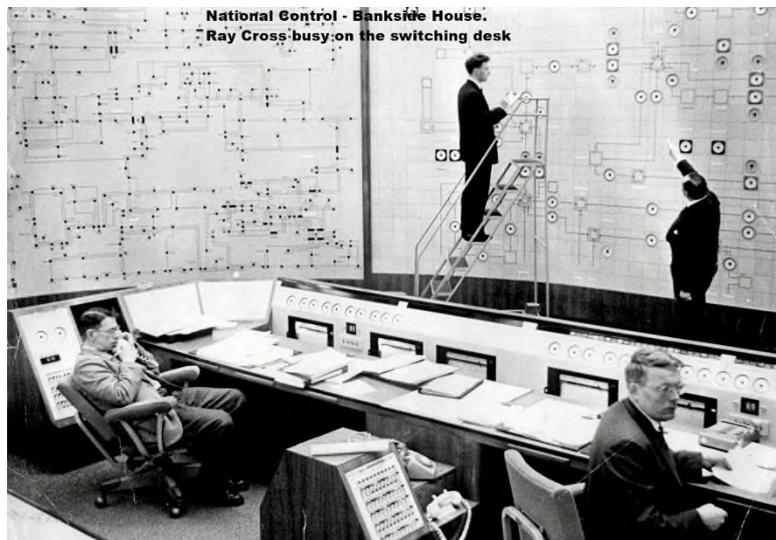
On another occasion, leaving after a night shift with Gerry Wadsworth, we passed Horace Ogden, the System Operation Engineer, in the car park. Mr Ogden felt he had to pass comment and asked Gerry why on earth he brought his sandwiches to work in a leather briefcase, was he trying to impress his neighbours. Ah, retorted Gerry, it's not what you bring to work it's what you take home that matters. When Mr Ogden got to his office, he found his desk clock was missing and continued to barrack Gerry convinced it was in his briefcase during that early morning encounter in the car park. The mystery was never solved.

Bankside House London

Late in 1968, again wanting to experience what was going on at the other end of the phone, I applied for the post of Assistant National Control Engineer in Bankside House and followed the likes of Colin Snowball to London. We were given three days paid leave with expenses to find a house. Not that easy when you have an 18 month old toddler and a heavily pregnant wife. So where do you start? Colin helped and suggested I look south of the river as it had the better train service. Due south is Croydon so we started there and, as luck would have it, we chose the first house we saw. My start date was delayed as I wanted to wait until after my child was born, after all it could be a son and who knows he might turn out to be a talented cricketer. I started at National Control on 1st March 1969, three weeks after my son was born. In those first few months I was initiated into the shift staff pattern of unwritten rules of behaviour. Each Senior Engineer of long standing from the early days in the WW2 bunker had their own. There were many variations for example

Control room telecoms were not high spec in those days and consisted of the usual meters, one of which was the frequency chart recorder. This was the most important and respected instrument in the control room, but not for all the reasons you might think. Working night shifts with only two engineers on duty it was inevitable that one would be left 'holding the fort' since the kitchen and toilet block were some distance from the control room. Fighting sleep in the 'dead' hours of the night when everyone else was in bed was itself a challenge particularly as National Control was responsible for frequency and electric clock time control.

Ray Cross Senior Control Engineer National Control Bankside. Combined Switching and Loading desk (cc 1968)



Close examination of the frequency chart recorder would reveal that the red metal pointer was highly polished down either edge. On night shift, when all was quiet, the chart recorder door would be opened and a clip placed on the scale bar. Now a metal contact, connected to a 9v Ever Ready battery and a doorbell, would ensure that should the frequency move by 0.1 c/s either way the pointer

would touch one or other of the contacts and the doorbell would ring alerting the Control Engineer. There were times when corrective action needed to be taken, but more often than not the contacts were simply moved further along the scale bar. This was the only audible frequency alarm in the control room and the shift engineers were eternally grateful for the ingenuity of Reg Eaglestone in telecoms for providing this essential overnight contraption.

As the industry moved from two tier to three tier control National Control needed to increase control room staffing, adding a further First Assistant Engineer to the shift complement of National Control Engineer and First Assistant Engineer. It was located on the top floor of Bankside House, the HQ of South Eastern Region, but plans were afoot to relocate across the road to Park Street where a new building was being erected to house a modern National Control Centre along with the HQ Computing Department. This new control centre was a giant step forward in the use of computers for collating data, viewing on a screen, monitoring and recording minute to minute operation of the National Grid System

National Control Park Street London

When the new control room was finished we all spent spare days there acquainting ourselves with the new technology. It was clearly ready to be commissioned and for National Control to move. But who in management had the courage to throw the switch? Time dragged on until one night in the early 1970s, at the height of the IRA bombings, a call from the police reporting that IRA had planted a bomb in Bankside House left no alternative and the move was under way. Rumours abounded that the anonymous call was in fact from Jim Porteous to get National Control to vacate Bankside House, but we will never know.

The most serious concern for the shift staff did not concern technical issues, more that all our night attire was still in our lockers in Bankside House. It must have been about Christmas time because I have it in my mind that I was attending the Computing

Department's Christmas party at Park Street. Later that evening I took the opportunity to go back to Bankside House and move my things across. The corridor to the control centre was on an open raised walkway along the side of the canteen. I got several strange looks from the other party goers in the canteen as I carried my pillow and sleeping bag up to the new mess room.

It had become a tradition at National Control that during the 12 hour Sunday shift one of the control engineers would cook a three course Sunday roast, plus a glass or two to help pass the time. Back in Bankside House the kitchen was small and the utensils were often family castoffs. With the move to the new control room at Park Street equipped with a new kitchen, I was asked to negotiate with Des Crooks and try to get the company to provide new pots, pans etc. Thinking it would be a negotiation I prepared a comprehensive list of top of the range equipment and presented it to Des. Without a blink of an eye he agreed. I still wonder what happened to the excess equipment that probably never got used when Park Street closed.

I came to realise system control engineers were "Jack of All Trades". They have to know a little about every operational aspect of the system, from power stations to system stability. Back then there were no real time computer programs to help, no load flows or system stability printouts. Even if there had have been, could we have relied on them. There were no records of the sub-synchronous reactance of old generator like the ones at Huddersfield, so why fool ourselves into thinking the computer simulated results were correct. What we did have were "Rules of thumb", many drawn up by Jim Greenwood. They were our bread and butter when considering if the system was at risk of instability or voltage collapse. Only later, when I moved into System Coordination and had dealings with the Technical and Planning Departments, did I begin to realise how System Operation's extensive knowledge was so well respected throughout the industry.

During the heady days of the CEGB security of supply was the Holy Grail, far more important than the cost of supply. Perhaps that's why the switching desk was looked upon as the senior position in the control room, be that in the Area or at National Control. But in my mind, only on the loading desk could you honestly say you had saved the industry more than you had cost them by ensuring you had the right level of plant synchronised to the System at any time. The more cautious Loading Engineers in the Regions might bring plant on line a little earlier and, at the end of the day, keep plant on longer than necessary so as to meet their area transfer programme with capacity to spare. Similarly, a cautious National Control loader would, in my mind, carry too much hidden spare, particularly during morning pick up. Yes, the Control Engineer's aim was to ensure security of supply for the consumer (no such thing as a customer in those days), but my satisfaction came from ensuring electricity was generated at the lowest possible cost.

CEGB HQ Paternoster Square

No doubt that's why, when a First Engineer position became vacant across the river at CEGB Headquarters, Paternoster in the System Economics Section of System Coordination I took the opportunity to apply. The section, headed by Dennis Jackson, produced the Merit Order and forecast individual station generation for the following three to five years, setting the base for the Industry's Bulk Supply Tariff and helping stations plan their running regimes. It

appeared a logical step into operational economics and a sensible way to get off shift. I'd only been at National Control a couple of years but it was abundantly clear that promotion was limited, waiting in line for the retirement of a National Control Engineer, none of whom ever seriously considered moving into management. The flexibility of shift work suited most and being in charge of the system at all times sounded more attractive than having to daily report up the management chain.

I couldn't see myself being on shift for the next 40 years so I decided to bite the bullet. With 17.5% shift allowance and a young family, it was no easy matter. However, in the early 70s inflation was rampant and pay rises were mouth-watering. My move coincided with a 12.5% annual increase, so a sideways move, softened by a couple of increments on the pay scale, meant I was no worse off in monetary terms. It proved to be another rewarding move. Life away from the control room, with two miners' strikes and privatisation yet to come, was perhaps the most interesting and challenging period of my career.

System Economics

The routine work of the System Economics Section was to produce the CEBG's Merit Order. This had been originally constructed on an average production cost basis. The average station fuel cost was combined with the average station operating costs using the stations thermal efficiency to calculate the merit order production cost. However, it became clear a lower total cost for the industry would be achieved by loading plant in Station Marginal Cost order. Rather than using the average fuel cost the station's marginal production cost was based on the most expensive tranche of fuel being delivered to the station. Similarly the station's marginal operating cost now only included the element of that cost that was load dependent. The time dependent costs, such as the rates and the cost of painting the boundary fence etc, were excluded as were most of the staffing costs.

During my time in the System Economics Section Ken Knowles managed the change from a Station Marginal Cost approach to System Marginal Cost Merit Order. It had been known for some time that station marginal costing was sub-optimum and only with the development of larger and faster computers was it possible to take the next step.

The computer program NELS (National Economic Load Scheduling) had been used for some time to predict the output from each station on a minute to minute basis. Daily demand curves were produced, coupled with station outages, allowing available stations to be loaded in marginal cost order, recognising their ability or otherwise to two shift and respond to changing system demand. The annual output from NELS was the basis of the Industry's Bulk Supply Tariff, and in addition to assisting with the station closure program, it helped determine station staffing levels.

The output from NELS, which forecast the fuel requirements of every station, was fed to the Fuel Supplies Department to aid in their negotiations with the National Coal Board and other fuel companies.

On the back of this process COFAL, a Fuel Allocation Program, was developed to optimise the fuel flows. Each fuel source and transport route ensured the total industry fuel cost was kept to the minimum for any NELS computation.

SYMAC (System Marginal Cost) now combined the two programs. A start merit order was fed into the load scheduler and each station's resulting fuel requirement was optimised by COFAL. COFAL now increased the requirement of each station in turn and calculated the increase in the cost to the system. This was the system marginal cost of heat for that particular station which was fed back into the Load Scheduler Merit Order, producing a revised and lower cost allocation. The whole process was now repeated until the total cost stabilised. The resulting merit order was then implemented.

SYMAC was by far largest suite of program run by CEGB requiring 12 hours of CPU time and was only able to run over a weekend. Twelve boxes (yes boxes) of paper output would be delivered to the office on Monday morning to be checked over to see if the computation had stabilised and if the resulting merit order was suitable for implementation. SYMAC was ahead of its time. The principle was right but at the time computing capacity fell short. To this day I am of the opinion that as so much data had to be fed in, all the years SYMAC was computed, it had never been run without a data error of some kind. Even so, the purists were happy that it was in fact a lower overall cost than Station Marginal Costing.

System Economics Section, being the interface between the CEGB's Fuels Supplies Department and System Operation, became the focal point of the three miners' strikes

The Coal Miners' Strike 1972 & 1974

The 1972 the miners' strike was notable as it was the first time since 1926 that British miners had been on a strike. Throughout industrial Britain there was widespread unrest at the Tory Government's pay restraint. At the 1971 annual NUM conference it was decided to ask for a 43% pay increase. The Conservative Government offered 8%. On 9th January 1972 miners from all over Britain came out on strike for the first time since the general strike of 1926. On 9th February a state of emergency was declared and two days later the three-day working week was introduced. An agreement was reached on 19th February and the miners returned to work on 28th February having being awarded a 21% pay increase, plus concessions on overtime pay and shift allowance.

Industrial pay awards were out of control and by 1973 the miners had fallen from first in the industrial pay league to eighteenth. At the time the economy was being weakened by soaring oil prices resulting from the Arab-Israeli war and the NUM recognised there was an opportunity to press for another substantial pay award. Late in 1973 the miners voted to take industrial action, starting a work to rule in November leading to an all-out strike on 9th February 1974.

The three-day working week in 1972 had swung public opinion against the miners and so, in readiness, a state of emergency was declared and a three-day working week prematurely introduced on 1st January 1974. The Government, recognising the spiralling effect brought about by the earlier pay rise, refused to compromise on the 7% pay offer and following stalemate, Edward Heath called a General Election for 28th February. To his and the Conservative Party's consternation Harold Wilson's Labour Party claimed victory. Michael Foot was appointed Secretary of state for Employment and awarded the miners a 35% pay increase with coal production resuming on 8th March. 1974.

1984 Miner's Strike.

A lot has already been written of the politics and the day to day conflicts. Margaret Thatcher was determined she would not follow Edward Heath and be defeated by Arthur Scargill. During 1983, long before the start of the strike, the CEBG were asked when would be the best time of year for a future miner's strike to start and how much coal would we need to have in stock to endure for six months without a need for power cuts.

Spring was the obvious start time to take advantage of the lower summer demands and so System Economics set about calculating the stock levels needed by the industry. Stations began extending stocking grounds and Fuel Supplies began building coal stocks in readiness for a spring strike. In March 1984, a few days after the Chairman reported to the Government that we were well prepared, Ian McGregor, the Chairman of the National Coal Board, instructed the closure of Cortonwood colliery near Rotherham. A pit in the heartland of The National Union of Mineworker, a pit that had two days earlier been told that the high quality silkstone coal they mined had another five years of life and just three weeks after 80 miners had been transferred there. Understandably, Ian McGregor's action left Arthur Scargill little choice but to initiate a strike ballot.

The strike lasted for twelve months without the need for power cuts and not the six we expected, but it could have been a different matter if the NUM had not splintered and the Nottinghamshire miners not formed the Union of Democratic Mine Workers who continued to work. Miners were now home owners with a mortgage, car and foreign holiday to pay for, very different from the situation at the time of the strike that led to the demise of the last Conservative Government. But one factor for which the CEBG was ill-prepared and which would have likely led to the success of the strike and the possible demise of the Thatcher Government; was the potentially tenuous position of lighting up and flame stabilisation oil at the coal fired power stations. Picketing stop deliveries of coal, but oil deliveries, often by road, were not affected. Coal that had been hastily stocked on unprepared ground was often not easy to ignite and so extra oil was required. As confidence in the continued oil deliveries grew, several coal stations changed the tips of their lighting up oil burners to increase the oil burn. These coal stations could now run on low loads fuelled solely on oil, and in some cases, when on full load almost half the fuel was oil. Had the NUM picketed the oil deliveries I doubt that the industry would have lasted six months without power restrictions, even with coal continuing to be delivered to several midlands stations.

Economics went out of the window. Plant was no longer loaded in production cost order. The merit order was now determined by a station's Fuel Scarcity Value based on how much coal a station had in stock, tempered by the level of oil in stock to satisfy the lighting up and flame stabilisation needs. Nuclear remained at the top of the order followed by oil. Then came the coal stations. As coal continued to be delivered to some station, thanks to the UDM, initially it was presumed deliveries would continue first for another week, then another two weeks and finally another month. The expected deliveries were now added to the coal held in stock reducing the stations Fuel Scarcity Value and moving the station to the top of the coal fired merit order.

The 500MW stations had never two shifted but now, as the overnight load began to decline and with Nuclear, oil and the coal stations with deliveries of coal running at base load, the time had come to bite the bullet and two shift the vulnerable 500MW generators. I'm told that now almost every 500MW coal station two shifts on a regular basis, but back then they were the jewel in the CEGB's crown. But needs must and we were advised we could instruct 500MW units to two shifts but only if none were seriously damaged. The first signs of trouble they would revert back to base load.

Behind the scenes, each week the CEGB reported to the Government on how it was going. A key aid in the report was the Sophie Curve. A concept I devised and sketched out on the train on my commute to work. Sophie Loren was at her peak of popularity and so those who saw the original sketch fully understand why Roger Hitt referred to it in those terms. The name stuck. The curve predicting when coal stocks would run out and when load shedding would need to be introduced. As we made more assumptions about continued deliveries of coal and the contribution from oil at coal fired power stations, during the autumn the Sophie Curve predicted that, with just a little more output from non-coal sources, the demand could be supplied in full well into the New Year and, with a fair wind, even endure over the summer of 1985. That's a year and a half from the start of the strike. All that was needed was a little more output from the nuclear stations. The station managers responded admirably.

When the strike finally ended in March 1985 for me things fell a little flat. My senior engineer's job was far too mundane after the pressure of the strike. Searching through the vacancy notices one prospect jumped out. It was an Electricity Industry two-year secondment to work for South Africa's Electricity Supply Commission. But that's another story. On my return in 1988, after two years away I needed a new challenge and rather than return to System Operation I asked to be relocated in Fuel Supplies. Thankfully John Wooley agreed and Jimmy Walker took me under his wing.

CEGB Privatisation

Not long after the prospect of privatisation raised its ugly head. I was asked to lead a small team to investigate the implications under the heading "Operation Manumission". (It is an act of an owner freeing their slaves – a very appropriate title chosen by John Wooley.) I dare say I have the one and only copy of the final report still in existence. It was the first attempt to define the structure of a privatised industry. It proposed that the Area Boards should be responsible for forecasting their own demand, whilst the generating companies would be responsible for ensuring enough generating capacity was available to meet that demand. Contracts would be drawn up between the area boards and the generating companies and these would be finely tuned as it got nearer to real time. All contracts would be overseen by National Grid who would initially act as a common carrier, becoming a market maker in real time and so be responsible for overall security of supply. For whatever reason the Area Boards would not take on the responsibility for predicting their own demand and, in my opinion, a less optimal arrangement was implemented. Even so, Operation Manumission was a worthwhile contribution, it ticked many of the boxes and started the ball rolling.

During the privatisation process I did not hear a single CEGB employee singing its virtues, all were against. After privatisation I did not hear a single complaint about the new world we were now occupying. Perhaps that's because other engineers, like me, had resigned ourselves to never becoming a manager, but with privatisation each company now needed a management structure and many of us were unexpectedly promoted.

Powergen

I became PowerGen's Fuel Economics Manager, being the link between those purchasing the fuel, giving them advice on how much fuel was required subject to the price and Ken Turner the manager of PowerGen's Energy Management Centre, advising him of the marginal cost of fuel to be used in any bid into the pool.

I retired from that post on full company pension at the end of March 1994, two months before my fifty second birthday. Far too young to retire, but at that time I was one of oldest in the department, or at least it felt as if was.

After Retirement

A year into retirement I was in need of a new challenge and was directed towards British Executive Service Overseas. It's was and still is a sort of VSO for the old and experienced. The six-month placements were with developing and formally Soviet Union countries, not filling a vacancy but as a voluntary advisor. The charity paid my air fare and the host government found my accommodation, not always, I might add, to western standards. Although when I was in Riga, I had one floor of a six story fully staffed hotel all to myself, complete with a lady sitting by the lift on each floor. But don't get carried away, the service she offered was not what you are thinking (or perhaps I was hoping). During Soviet times the Russians commandeered the best hotels so Latvenergo built its own hotel to accommodate visitors, but now Latvia had become independent the hotel was dramatically underutilised. I advised the chairman that the hotel had to go, Latvenergo was not in the hospitality business, but for whatever reason he would not see sense.

Latvia had been my third placement, my first being Jordan followed by Eritrea, and finally Georgia. It was interesting to be confronted in Georgia by two 30MW ex-Doncaster generators, similar to the ones I'd worked on at Huddersfield. I had not realised that ex-CEGB generators were in such high demand in developing countries. What was also interesting was how grateful local engineers were when I trotted out Jim Greenwood's rules of thumb. Yes they had computers and sophisticated programs, but not the necessary system characteristics to give the engineers confidence in the results. In real time situations, neither did they have telecommunications with the remote ends of their system, relying on dubious telephone communications for real time information.

After five years I felt I was time expired, but that was not the end. Being a member of the Institute of Electrical Engineers I'd attended many lectures at Savoy Place and now I was being asked to present one. Was this the pinnacle of my career? Well not in the way you might imagine. It was on behalf of BESO with the aim of convincing other electrical engineer that a placement with BESO was rewarding in so many ways. As a volunteer in the countries

I'd visited I'd been treated as a guest, invited into their home, spent the final evening of Ramadan dining with a Muslim family, meeting their friends, being taken at the weekend to places no tourist would ever visit. So yes, it was the highlight of my career and an appropriate way to hang up my boots.

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