



The pressure is beginning to stack up as the demands of NZEB come more centre stage. The clamour for “silver bullet” solutions is palpable as the worry of non-compliance heats up. Ironically, there is scope for significantly-reduced energy consumption from traditional good practice design that is being missed in the transition from concept to completion, writes *Tom Ascough, Director, Symphony Energy.*

## TO NZEB AND BEYOND

**There continues to** exist a grey area between the consultant’s design aspirations and the final built product. Most importantly, whatever about the consultant and the contractor, neither the client nor the architect recognise this void and consequently there is no budget allocated to bridge it. Besides, it’s difficult to know if a bridging service has been successfully rendered until the building is operating comfortably and energy efficiently.

Without a budget, an optimally-configured installation remains mostly illusive. Neither the consultant nor the contractor can be expected to invest in this space without compensation. In any case, it’s a highly specialist “grey area”. It needs to blend the consultant’s concept creativity, practical installation knowledge and building automation programming into a single service offering. Our

experience is that clients will only take this seriously if they are assured they will benefit from energy savings. If they can get their heads around the concept of an EPC (Energy Performance Contract), then they know they are guaranteed the savings, or at least a risk-free attempt, at getting them.

Perhaps we’ve asked too much from installation contractors in the past by pressing them to meet us half way through the “grey area” in order to salvage a modicum of the lost energy performance buried in the finer operational set-up of buildings’ M&E systems. To spare everyone the pain, we widened the remit of our consultancy practice to bridge the gap between concept and competition.

Through EPC Contractor Symphony Energy, we forged a new EPC offering that guarantees a sizable energy saving release from

existing building M&E systems. This idea has been tested and has proven highly-effective on several projects. Savings of 50% are typical, although a number of projects have the energy dial crossing the 70% and 80% savings thresholds. So, before subjecting owners of existing building stock to high retrofit costs in an effort to play catch-up towards NZEB, first explore what can be done to get a deep retrofit effect without needing a deep retrofit budget.

Consultants working on new projects need not wait until their designs are struggling to deliver the desired energy performance in reality. NZEB ought to be more a concern for clients than their project teams. The pragmatic approach for everyone's benefit is to ensure the client allocates room in the project budget to better achieve the desired energy performance at, and post, completion. This provides a high level of assurance that NZEB levels are achieved, and perhaps exceeded, for new projects. By having an EPC contractor involved in the project from the early design stages, the crucial link between concept and actual energy performance is, quite literally, guaranteed.

The stakes are high for anyone offering an EPC as the client can

only win, but the provider may take a loss, perhaps a heavy loss. To mitigate risk, we had to be confident in our predicted engineering solution outcomes. We also needed to have integral involvement in developing control algorithms that precisely matched the engineering concepts under every conceivable operating scenario. We needed to be proficient in coding so we could at least recognise programming issues and live test the code to iron out any bugs that would stifle the intended outcome.

Ultimately, we found ourselves searching the global market for high-grade PLC/BEMS equipment that is built on open systems architecture so it can act as a systems integration point with all other BMS systems, and with practically all other open protocols associated with M&E equipment. Such protocols range from BACnet, Modbus, Lonworks to OPC, Dali, KNX, EnOcean and mBus. Using Loytec equipment, we've been able to integrate existing BMS and other M&E equipment to provide a single composite operating platform. With code programming in IEC61131-3 and other standard web software, it's been possible to exactly deliver the engineering solution from

concept to completion.

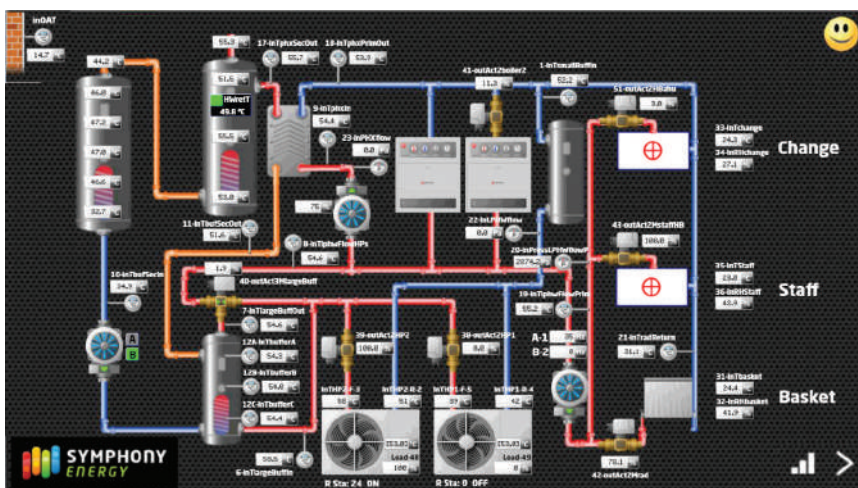
A tailored smartphone app is developed for each building or site. This empowers the facilities and maintenance team with good visibility into the operation of their buildings and the ability to swiftly intervene where necessary. The app also enables manual control over various individual items of equipment, making maintenance procedures more efficient.

Our quest to conquer the energy gap in the "grey zone" has yielded some high-value operational and management benefits over and beyond the deep energy savings. The broader integration of the M&E systems data with a wider array of IIoT data and machine-learning enhances the automated identification of the control system's dynamic, integrated, optimum performance points.

Herein lies the next generation of energy savings that are key to nailing NZEB targets and beyond. Now, all of this diverse data is gathered together with a suite of powerful analytical tools on a cloud platform. Apart from providing wider market access to these now-proven extraordinary energy savings capabilities, this empowers a major advancement for energy, facilities and maintenance management proficiency.

The cloud platform also makes it easier to identify and assess a near endless pipeline of future energy saving measures, thereby serving to deliver upon the continuous improvement requirements of ISO50001 more effortlessly. ■

• *Symphony Cloud was launched at the 2019 SEAI Energy Show in the RDS (March 27/28 2019). This will be a revolutionary tool for energy, facilities and maintenance management.*



An IT graphic showing the Symphony Cloud configuration.