

## **An Interview with Edwin Pinero – ISO 50001 Independent Chair** ***Energy Efficiency, the Forgotten Fuel Source, and the importance of ISO 50001***

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Welcome to the LRQA Business Assurance interview series. ISO 50001 is the new Global Energy Management System Standard. Edwin Pinero, former advisor to President George W. Bush and the independent chair of the ISO 50001 committee talked to LRQA Business Assurance about the importance of ISO 50001 to both countries and organizations, large and small, as well as the benefits of independent, third-party certification.

### **What is an Energy Management System?**

**Ed Pinero:** An Energy Management System (EnMS) – and if you're familiar with the traditional ISO management system model - it's the same thing that we see with ISO 9001 and 14001. Historically it's based upon trying to check the management approach framework, and in this case it's to deal with energy aspects or energy uses. So the fundamental difference between energy management system and the more well-known quality management system and environmental management system is that in this case we're talking about energy attributes. But the management foundation and the model is exactly the same.

### **What are the key benefits to global organisations of implementing an ISO 50001 Energy Management System?**

**Ed Pinero:** If an organisation understands the other models and maybe they're actually using a quality management system or environmental management system, they couldn't adopt it as an energy management system. An EnMS allows them to bring more visibility and control over energy issues. We have seen over the years that within the ISO 14001 environment, many would argue that there are synergies through an ISO 14001 type system and fundamentally that is true except we have seen over the last 15 years that ISO14001 has been in the market there's a real demand for a dedicated EnMS from energy managers and organisations. There is enough of a difference between energy issues and environmental issues that capitalising on the 14001 model to manage energy has not quite worked out exactly perfectly. So one of the additional benefits of the energy management system is that now it gives the energy managers of an organisation a tool that is focused on energy. Because of the compatibility between the

two they can very, very easily be integrated. The major benefit is that EnMS and environmental management systems are so closely related in terms of the approach and the fact that they both have to deal with the environment and natural resources and so on. One of the main things that ISO 50001 does is that it allows an organisation to think about energy and its environmental impact.

Because remember, even if you manage energy through your ISO 14001 system you're focusing it on the related, actual, or potential environmental impacts. What ISO 50001 allows is that you can look at energy not only because of its environmental impact but you can determine significance based on other factors, reliability, energy independence, energy security issues, you can introduce all of these other significant criteria that are not specifically tied to an environmental impact.

### **Can you talk about the differences between and the evolution process from EN 16001 to ISO 50001?**

**Ed Pinero:** It's an excellent question, because that was probably one of the biggest topics of discussion in the very first meeting we had in September of 2008. EN16001 is a European Union's Management System Standard. It's important to note that is one of several regional energy management system standards that were in existence at the time. I think there are 13 or 14 such systems, and such standards were in the marketplace at the time we started our work.

In the early days of ISO 50001 when we looked at existing documentation to determine how we wanted to put the standard together there were two very important documents we looked at that pretty much served as the foundation of ISO 50001. One was EN16001, the other one was called a management system for energy which was the US national standard for energy management system, both of these documents really were the main ones that were consulted, in addition to some work that the United Nations Industrial Development Organisation (UNIDO) had done to serve as a foundation to create ISO 50001. There are some differences, for example EN 16001 talks about energy aspects and they do that to align with environmental aspects that you see in ISO 14001. In ISO 50001 we don't use that term of energy aspects, we talk about energy uses and energy use and consumption. However, we do make statements that relate to how an energy use relates to energy aspects for those who are familiar with EN 16001 and are

trying to see how ISO 50001 fits. What I envisioned might happen going forward, this is just an observation, I have no foundation for this but I think over time we will see ISO 50001 replace many of these regional and national standards, just the way in which we saw happen with ISO 14001 and its corresponding regional and national standards. I would have to argue and I would have to say though that I think when we ended up with ISO 50001 there weren't that many differences at all between the two documents other than that issue about the aspects which is simply a terminology issue, I think conceptually both documents were very, very similar.

**You recently stated that "ISO 50001 could potentially impact up to 60% of the world's energy demand." Could you explain a bit about that statement?**

**Ed Pinero:** It's interesting, interesting point because actually I was in turn quoting another document. There was a UNIDO study in 2007 that talked about energy use and the need for energy management worldwide. The 60% number comes from the fact that 60% of the world's energy use is in the industrial sector and because the standard was originally targeted to address energy use and energy management in the industrial sector that's where the comment came from. So in other words, if the target market the standard was originally intended for were to adopt energy management principles it would enable by definition, to have the potential to influence 60% of the world's energy users. So that's where the quote came from, it was a reference of a UNIDO study. Now to put my own additional point on that. Some would argue, that a critic may say yes but not every industrial sector is going to uptake ISO 50001 so it's somewhat less than that, and that's true. But the compensating factor is that even though the industrial sector was originally, the original market that was considered when this standard was conceived what we very quickly realised as with the other ISO management system standards that any type of organisation can use this. So in addition to the industrial energy users in the world there are many other energy users, there are the commercial area, public sector can all benefit from this standard. So there's even a greater percentage of world energy users that could potentially benefit from such a standard.

**You've developed and launched ISO 50001 in a period of just about two years, can you explain that?**

**Ed Pinero:** Well there were several factors that led to that. I think one of them is that

there's a natural progression of lessons learned from the previous work. So ISO 9001 took a certain amount of time, ISO 14001 took a certain amount of time, but it was less than 9001, and then ISO 50001 - because all three standards are so similar and there certainly was some overlap between the participants in the committees - that we were able to learn from prior experiences and not repeat certain roadblocks. There's a very tangible, direct relationship between costs with organisations and energy use, so the fact that this is presented as a tool to deal with energy use, it was much more of interest. Again, I'm not diminishing ISO 14001 but environmental issues to many people tend to be that people don't always recognise the immediate cost benefit; they see environmental management more as a risk avoidance activity. I've said that but I think that's the general perception whereas energy saving and energy management have a more direct one to one benefit. There's one other factor that I want to point out on the history of the committee. I have been part of the ISO process since 1994. I have been on many committees and working on different documents. This group of people, this group of working candidates that made up this committee were incredibly committed to getting this done and working to consensus. We were able to deal with critical issues very quickly, very efficiently and national delegations that had specific interests were willing to compromise in order to reach consensus. So I would go as far as to say that one of the key factors, you know clearly energy and climate are important I'm not diminishing the topic of the standard, but I would say an almost equal factor in us being able to do this in such a short time was the dedication and commitment of the national delegates to this work, which to me tells me that this interest and this sense of urgency dealing that energy management was truly global.

**It has been widely stated that ISO 50001 will deliver energy efficiency benefits, reduce organisational costs, improve environmental performance, and potentially reduce organisational risk. Can you talk about those areas?**

**Ed Pinero:** One of the concepts that we all agreed on in the very beginning and this was part of the UNIDO study that was done and that led in to this actual work product, this actual work item is that although technology and mechanical improvements do help with energy, improving energy efficiency and energy use, the big area for potential improvement is how people, how organisations manage their energy use. If you consider the analogy to your home, then clearly more efficient light bulbs and more efficient appliances will help, but if you don't manage your energy, if you don't turn out your lights when you don't need them and so on, you're still going to be wasting resources

and money that you could be saving without any kind of technological improvement. The other thing was that – and particularly in the industrial sector - there's such long time periods between replacing machinery and replacing equipment that if you depended just on technology improvements for energy management you would have to wait these long periods of time before you can enact change. Now, the magic was that with a better understanding and a more organised approach to managing energy use that as a result you would use less energy per unit whatever, whether it is per unit production, per unit time whatever and that's the energy efficiency aspect of it. **Energy efficiency we felt was the forgotten fuel source**, people talk about oil and gas, and coal and nuclear, the forgotten fuel source is energy efficiency because the most efficient and best use of the energy means the energy is not used at all. So that's why energy efficiency was such a key focus and that's why the standard is driven towards looking for places where energy is used and driving the organisation to identify ways to use less energy to accomplish the same goal, which is fundamentally the definition of improved energy efficiency. **Because energy costs money then clearly improving energy use would reduce energy related costs** and that's the relationship between energy and costs. It's simply, "I'm going to use less electrons and since I pay for electrons I'm going to put less money out for energy use." The environmental performance aspect of it is energy, using energy has environmental implications both direct and indirect and what I mean by indirect is it's when you buy energy off the electric grid somebody else has to generate it to get into the grid and that includes consumption of natural resources which could mean bio-renewable resources, it generates solid waste, it generates water discharges, and it generates you know emissions. So every element of energy that has to be generated has an environmental footprint associated with it. So again, it all goes back to the foundational point of energy efficiency. **The less energy that's used, the less corresponding environmental impact that comes along with it.** Where energy has to be used because it's a basic requirement - remember we are realistic, and the original market was the industrial sector and the industrial sector does not work without energy. Where energy has to be used our goal is to improve the efficiency of its use, as I just mentioned and also to look for opportunities for alternative sources of energy so that even when you do have to use energy or generate it you're not generating it from non-renewable resources. So the logic behind ISO 50001 management system is the whole picture. It anchors on energy use which is why that is a foundational element of the standard, energy use with the goal of using less and that has these secondary implications, cost and environmental impact. I would say that one of the things that's not listed on this question which were factors unique to energy management is that in

addition to this you also improve your energy reliability and energy security because the less energy you need to use to do a job the less you have to depend on somebody else getting it to you, and because this all has an element of trying to look for alternative energy sources, distributed energy sources, it would improve your energy security because you're more self-reliant.

### **How can organisations, both in the private and public sectors benefit from certification of their ISO 50001 management system?**

**Ed Pinero:** My view of this is this - and I listened to the background that you just mentioned. I don't know if you folks were aware but for several years I was a contract, third party assessor for LRQA for ISO 14001. What I would tell, what I tell users of a standard like this, is that they're making two business decisions. One is the decision to implement the standard, and the reason for that is they want to gain whatever benefit or advantage comes from having that type of approach to energy management. Then they have another business decision to make and that is 'do I want to get the system certified, or third party certified?' and the reasons for that vary. There's a customer requirement or a stakeholder requirement, there's the desire to have an independent party help with evaluating the system. You know this standard - as with the other management system standards - has a requirement for internal assessment, so the system is being audited either way, but the question is do you need or would you prefer an external, completely objective, accredited body to do the work. Then the third meaning for the certification is that the independent, validated declaration will give them some market, you know retain market share or improve market share. So, I don't see it as being different than it has been with the ISO 14001 and ISO 9001 and that once a decision has been made to improve the system, they have to ask themselves the same set of questions. I am a true believer in third party certification, part of my career, but I am very practical in trying to say do not assume that every system that you implement has to be certified for it to work, that is not a condition of the system working. Having a certification, the certification it serves another purpose. So with that in mind that's kind of how I see how organisations and stakeholders will determine benefit. It's actually proved itself as it did with ISO 9001 and ISO 14001, plus adding in the factor of the significant levels of general awareness of energy and climate issues and more applications of having this system for example on carbon trading schemes, in energy performance, incentive programmes, having, realising all of that **I expect there to be a much greater interest in certifying ISO 50001 systems than I've seen with the other**

standards.

**Can you tell us about the potential benefits for the public and government sector for ISO 50001 certification?**

**Ed Pinero:** Having worked in the public sectors specifically doing a task which involved using management systems to improve government performance, because that's what my job fundamentally was when I worked for the White House and that was the management of the government itself. I see significant value for the public sector to use ISO 50001 because in the US for example the largest single consumer of energy in this country is the USA government. So if you were to use the logic of the biggest energy users can benefit the most from this standard then the number one organisation in the US who should look at this document is the US government, it's not a particular industry sector. Secondly, we had, during our tenure in the White House we had rewritten some of the Presidential Executive Orders to require the agencies to have ISO 14001 management systems to manage energy issues. What I would hope, and if I still were in that position what I would do is to also require is to either have an ISO 50001 system or integrate an ISO 50001 element into the existing ISO 14001 systems because I see so much potential benefit in the public sector to use this. But the certification question for the public sector is very similar to the one point I made about the private sector and that is the federal agencies, or the state agencies or whatever public sector body does this, they need to make a certain determination in addition to implementing the system which is corresponding benefits, are there value added benefits to get certified. That's a very sensitive question in the public sector because that's using tax payer dollars, so the agency would have to ask itself is it worth spending the additional public sector tax dollars to pay for certification of our management systems, and every agency is different. I think a market that's not being talked about very much but I think is a significant market area and that is the public sector, the public sector uptake of ISO 14001 in terms of training and how to use it, implementation support, the gap analysis work, and then the conformity assessments afterwards.

**What benefits and values should organisations be looking for out of their certification body throughout the assessment process?**

**Ed Pinero:** Well I think one of the things that they should look for and actually if

kind of just familiar with the Department of Energy Superior Energy Performance Programme, (the SEPP programme) and if you're not familiar with that get familiar with it because that's going to be a big market opportunity for certification bodies in the US. But anyway, one of the things that we all agreed upon in the committee is that the, one of the additional values that we wanted at ISO 50001 is that in addition to the system being implemented that there would be an increased attention paid to actual performance improvement. One of the issues people made about ISO 14001 is that it was very driven by the system elements, in other words implementing the system and when the system was certified, looking to make sure the system was working and although the certification body, the auditors would look at performance they would look at performance in the context of how the system responds to performance whether or not it's good or bad performance. One of the things we tried to do with ISO 50001 is to key that up a notch so that it is more of a, the success of the system and therefore a successful certification would be more dependent on not only the system operating but also in actual performance improvement that we would see more, more reliance on that than we did in the ISO14001 standard. So a certification body that's doing an ISO 50001 assessment would have to be able to not only talk about the system and how its working and are there any non-conformances, but would have to be clear on what impact that had on energy and climate improvement based on the organisations goals and make that more of an issue. I don't know if I'm making any sense but we've circled back to finish off with the truth of your question. **You know, what value would, can a certification audit bring to the organisation in terms of using the system, the actual audit process, in this case with ISO 50001 we would expect that as part of this process an organisation would not only learn more about its system and how its working, but it would also have a better understanding of how that system is impacting its performance.**

**How important is it to have an auditor – for example - in the manufacturing industry who actually understands and has a background in your industry?**

**Ed Pinero:** Well I think it's as important if not more important for ISO 50001 for that to be the case that the part of the audit function would include not only a systems auditor that understood the sector, and who would understand the regulatory landscape and all that kind of stuff and that's still the same here but I think an understanding of the technology and the process and how it relates to energy use is significant here to the point where if you look at the Department of Energy's programme, the Superior Energy

Performance Programme. **In order to enter into that programme you have to have a valid ISO 50001 system and they actually require you to be certified.** However, that audit and that certification is a “certification plus” if you want to call it that, where the audit team not only answers your traditional ISO 50001 certification audit, although that’s new as well but also has members of a team who are qualified to get very deep in to the detail of the technology, the process and how they calculate their energy use. So again from the certification body’s perspective, the training of your auditors and the definition of what defines a qualified audit team is going to have significantly more attention paid to those who supplement the actual system assessors in terms of the energy and process.

### **How can ISO 50001 help organisations meet their climate change objectives?**

**Ed Pinero:** ISO 50001 is incredibly easy to integrate with ISO 14001 because that was done intentionally. We literally cut and pasted language from ISO 14001 into ISO 50001 for some of the basic system elements. So things like document control and record keeping within the generic system is exactly the same. Not only can you integrate your systems but if you already have an ISO 14001 system I would assume from my experience in implementing systems that if organisations already have ISO 14001 systems they’re really not going to create a ISO 50001 system and then integrate them. What they’re going to do is take that huge part of the system that already is literally the same requirement and then just supplement it with the energy specific things and where you’re going to achieve that from the most part is in the planning element and then there’s something in taking preventive action particularly in the monitoring and measurement part. The ISO 50001 has a little bit more requirement based on performance measurement as well as system performance. That was the fundamental premise that the committee worked on from day one, that this would be completely fully seamlessly able to be integrated with ISO 14001. In terms of the climate change piece, the logic that we used to tie this together was and again keep in mind this is an energy management system standard, so in the context of energy clearly there are greenhouse gas implications, based on energy use and a lot of what they have to do with is where the energy comes from and what type of energy you use. So the reason we keep these linked together which is energy and climate is that an organisation based on its climate goals will make energy use decisions. A huge part of that reduction is going to come from different way to use and manage energy so that’s how a climate goal drives energy use. Then the other aspect of this is that vastly improved energy use

for whatever reason they decide to do that, they will get a corresponding climate improvement. Just kind of naturally. So we're asking the organisation, even if your main driver is energy use for whatever reason, cost or whatever, don't forget to calculate and keep in mind your energy and your climate improvements that come along with that because that's helpful information and that is going to help your overall performance improvement. So that's kind of how we tie them together. There are ways to benefit from climate, there are ways to improve your climate footprint that don't really have to do with energy directly, you know there's certain chemicals that you can use or not use to have an impact and that's really not part of this standard. ISO 50001 does deal with climate in the context of being related to energy use.

**What do you anticipate to be the take-up globally of ISO 50001 and in particular are there any specific countries that you think will lead the way?**

**Ed Pinero:** I can only really answer this based on discussions I have had and interacting with the members of our committee because I haven't done any formal survey on this. But based on what I see happening as we were developing the standard and having been part of the ISO 14001 process, and being part of TC207 almost since it started, **my feeling is that there will be a significantly higher uptake globally at a faster pace than we saw with ISO 14001 and with ISO 9001. I'm going to go out on a limb and say that I think the US will be one of those countries that show a large interest and uptake early on** which was not the case with ISO 9001 and ISO 14000. Part of the reason is the energy and climate is a big issue here in the US in the private sector and the Department of Energy is taking a very aggressive leadership position in promoting energy management as part of energy, of good energy stewardship. So, the US I see as being one of those countries. The developing countries, I think are going to be much or very active, we've seen **a lot interest in Latin America and in Asia on the standard**, they are, they've been anxiously awaiting the publication because they already have training sessions and assistance programmes that are already developed and cued up and ready to release, ready to go. So I would say that US, Latin America, Asia and of course Europe because and that's pretty much the whole world, but Europe because that's where the EN16001 came from, so they were already thinking in this direction. To speculate a little bit further, and this one I'm even more unsure about and that is, I'm going to anticipate that one of the elements we'll see appearing in some of these greenhouse gas and carbon reduction programmes around the world will include a component of having to have an energy management system. Because a lot of the environmental incentive

programmes and environmental policies, you know if you look at the Netherlands for example, they used the environmental management system as a foundation on management approach in order to serve as a basis for their programmes, their, you know their voluntary programmes and incentive programmes. That's what the Department of Energy is doing in the US with energy, with ISO 50001. **So I'm guessing that over time we're going to see these, particularly some of these greenhouse gas training programmes possibly include requiring the applicant organisation to have a ISO 50001 system.**

**You have had a very interesting career to this point. Can you share some of your experiences with us?**

**Ed Pinero:** Well okay. My background is in environmental science and earth science. I'm a Geologist by education. I started my career in the gas industry from mid-1980's on, I have been in this area of environmental. I would call it environmental management and sustainability before anybody called it environmental. But that's what I did for a living, I helped organisations in one way or the other with their footprints, their energy footprints, environmental footprints and in the 90's this kind of got absorbed into this general concept of sustainability. So, there were two parallel careers that were going on at the same time, one is my involvement with the ISO standards. I joined in the mid-1990's and over the years I had different roles, in different committees. At this moment, not only do I Chair the ISO 50001 committee but I am the US Representative to the Sustainability Guide Development Group which is an ISO T&B effort to develop a guide for standards writers on sustainability. And I also represent our committee on the Joint Technical Coordination Group which is the committee of all ISO committee chairs that are working on, the big project we're working on now is the generic management system standard framework which I don't know whether you are familiar with that. But anyway, so I have had this involvement in the ISO committees process since the mid-90's that has carried through from job to job and one of the things I do when I go from one job to the next is I kind of, you know, let them know I'm working on it and I would like to stay involved. Now, the reason that it's interesting, but the reason that the White House job came in, was directly related to environmental management systems and ISO. Because one of the, the reason I was hired, and I wasn't a political appointee I was appointed by the President, the reason I was hired was that President Bush's administration had made a commitment to more aggressively implement environmental management systems in the federal government and they were looking for somebody

who had that expertise in the public sector. I had three years working for the Pennsylvania state government in the mid-90's working on exactly that. We were looking at it from any management system concepts in the state government so my expertise was unique in that it was understanding the environmental management concept, understanding the ISO process and having done that as a public sector which is exactly what the White House was looking for. So that's where that job came from. When I got there it expanded immediately into being, my position was fundamentally the equivalent of a Chief Sustainability Officer for the federal government, you know, we called it Federal Environmental Executive because, you know, we were Bureaucrats so you always get complicated names but that's what I was, I was the Chief Sustainability Officer for the federal government. And we have taken the philosophy that the environmental management systems of tomorrow would be the management foundation to manage all of our sustainability goals in the federal government. So that's kind of how I got in to that. And then during, around those jobs I circled, I was a consultant, I had my own company plus I worked for other consultant firms in this environmental management space, and that's how I ended up working with LRQA, that it had a, I was approached by LRQA about helping with some of the training and auditing and that's kind of the way that came up. Now, right now the Chief Sustainability Officer for Veolia in North America so I'm still doing the same kind of work, you know, we are, we here in this company are committed to integrate the management system. I have a team that work from a Health & Safety, environment, quality etc and now we're looking at ISO 50001 to manage our operations. We do have certified facilities, a lot of it is driven by the customer need, we are a service provider. And then I oversee these overall sustainability goals and objectives of the organisation.

**With your background in both the assessment and development sides of management systems, what would your advice to certification bodies in relation to ISO 50001 be?**

**Ed Pinero:** I would tell them two points. One to talk to your existing, especially your ISO 14001 customers about this in the context of how easy this is to integrate with ISO 14001, why it provides more focus dealing with energy issues. You know, because a lot of the ISO 14001 users think they have energy management taken care of because they've included energy in one of the aspects. **So I think really, I think raising awareness on the compatibility of ISO 50001 with ISO 14001 is about the incremental benefit.** That's one point. I think the second area is that the certification bodies are going to have

to bring value to their customers in terms of the performance aspect of this. It's going to be, it has to be more than auditing the system and raising, you know, commenting on conformance and non-conformance with the system elements itself. The certification body is going to have to be able to comment, to talk about how that relates to performance. I know that in ISO 14001 that was not the current view of the third party assessor but I think the way we wrote **ISO 50001 is going to give the certification bodies significantly more latitude to talk about that and a successful certification body is going to be one to pick, to run with that and can actually bring that forward to their customers.**