

INDUSTRY SKILLS 360 SERIES – GAS WEBINAR

Webinar held: 24 March 2021

Panellists:

Michael Broomhead, Deputy Chair, Gas Industry Reference Committee

Raja Ginting, Industry Skills Specialist, AIS

Paul Walsh, CEO, AIS (facilitator)

Q & A with the panel

1. Please advise Hydrogen TP product development is at in the process at the moment

Michael Broomhead: I can say where we've been and then you (Raja) can say where we're at. So currently at the moment with the hydrogen projects we put a TAC together from industry experts and SMEs that included the Australian Hydrogen Council, Gas Energy Australia, ATCO, Jemena, Enertrain and various RTOs and we formed two groups. One group was to develop new units identified that were required for hydrogen, and the other group was to update existing units to reference hydrogen within the existing units of competency. Those two groups initially met, organized who was going to split and then they split and we had roughly around six to eight meetings, each group, and it went out for draft on two stages for comment. We reviewed those comments on each occasion, got together again as a group and then on the last review, draft review the whole group came back together to review the units of competency and we've now concluded that stage, and Raja can fill in on the rest.

Raja Ginting: Thanks Michael, that's correct and so in terms of the training package development cycle, we've completed the TAC cycle which includes the public consultation periods as Michael pointed out earlier and now the draft materials are about to go through the QA process and editing process and after that, we'll circulate the products to our state training authority colleagues. We'll start to prepare for the case for endorsement and the target is to submit the case for endorsement by June this year, and hopefully you'll be able to see the products available for implementation as early as the later part of this second half this year. So, I hope that answers your question Nigel. Thanks for the question by the way.

2. Are there Units of Competency (UoC) for Hydrogen that can be used or imported by other training packages?

Raja Ginting: Thanks Paul, yes absolutely the answer is yes to that question and thanks for the question by the way. So, there are a few units of competency that are definitely available for importation by other training packages. Obviously, the applied safety practices unit for working with hydrogen, I think the TAC actually wanted to endorse that you need to be applied across industry sectors, because it does incorporate the skills and knowledge to work with hydrogen safely. There's another unit which is around the commissioning and

operating electrolyzers that obviously can be used by not only the gas industry, but by the plumbing sector as well. There's also the units around undertaking routine and non-routine activities in storage facilities that can be used by those who probably have some background in PMA training package or process manufacturing activities. So, there's those units that that can be used by other training packages, there's also units that have been developed that are particularly designed for the gas industry for example, the injecting hydrogen into the distribution networks and also monitoring the presence of hydrogen in distribution networks. Michael, would you like to add to that?

Michael Broomhead: No, just to confer with what you've stated, I think the other industries will definitely be able to import them into their training packages, but it's just what's relevant in regards to their packages.

3. Can you offer some insight into how the UEG, AUR UEE and CPC training package puzzle will be put together? How will the gaps be filled and overlaps be monitored?

Michael Broomhead: Yeah, cheers for that Robert, it will be one that we need to keep a helicopter view on, which the SSOs will assist in that. AIS will also assist in that, each gas IRC will review what's best for their training package and as we announce the draft units of competency and the units of competency get approved. Obviously, the other gas IRC should be able to look at those and then take from there what's relevant to their industry and they might then import that unit of competency into their package, or they might expand on that Unit of Competency and use key areas of that Unit of Competency within their own Units of Competency. So, that the construction package, I suppose the gas fitting package in particular, that's going to have a lot from our training package, that's going to have a large impact on the gas fitters' package, because we've got to make sure that the appliances will run on the hydrogen and the initial thought process is it's going to be blended hydrogen once it gets into any networks but and it shouldn't affect the appliances. But that testing is going on now and then further down the track into the future when we move into a 100% hydrogen, if or when that happens, then that's when the construction package needs to be ready for the gas fitters.

Raja Ginting: If I can add to that Paul and Michael, thanks Robert for the question. So far, we've (AIS and the gas IRC) [have] been approached by different parts of the industry. Those who are interested in having their own skills and needs addressed and what we've been doing is we've been engaging with them. If we can redirect them to the right SSO or the right IRC that's what we've been doing otherwise if it's the needs that is important for them to want to take it up to the IRC, we've been doing that as well. We've been communicating with the IRC Chair and deputy chair about potential skills development in hydrogen, however due to some limitations of training package responsibility that falls within the gas IRCs domain. If we can't address those skills needs what we've been doing is redirecting them or we try to connect them to the right SSO or the right IRC. We've been approached by those who are from the production sector of hydrogen, I'm using chemical reactions for example, so that would be something that should be best addressed by the PMA training package for example. Robert you also know that we've been having discussions around addressing the skill needs in the plumbing industry for example and big thanks to those who have been participating in the hydrogen discussion from the plumbing industry as well. So, yeah it's an ongoing conversation as Michael pointed out and the story doesn't end

here, whatever we can address we'll address but if it doesn't fall within our domain, we'll connect the stakeholders to the right area, so SSO or IRC.

Michael Broomhead: So, I think really to answer how all the gaps and overlaps be identified, its consultation, and through gas IRCs and SSOs and yeah, it's very fluid. It will be constantly moving, but hopefully we'll address all of the gaps and overlaps together.

4. How will you ensure that the hydrogen industry can have a swift uptake in the short term with the current gap in skilled hydrogen workers?

Michael Broomhead: So, from my perspective, representing industry and we are an RTO as well as a company, we would be addressing it internally initially and it'd be industry demand. So, as the hydrogen projects and trials get developed and the demand increases then that training will increase. But generally, any training is driven by industry and industry is driving the hydrogen sector and so therefore I believe that the gaps will be swiftly taken up.

5. Do you have an idea of timeline introduce to the Distribution networks in Aust?

Michael Broomhead: Yeah, it's difficult to answer that one, there's lots of trials going on the network now. I know over in Sydney, Jemena is trialling, I think they're about to commission one of their hydrogen plants. We have a hydrogen plant over here, I'm over in Western Australia and we have a hydrogen plant here, a green hydrogen plant on trial, which we are injecting, not into the network but locally on site, and that trial is going well. Timeframes, I'm sure it's when the infrastructure is in and all the boxes are ticked. I don't believe that we've quite got a really good timeframe but at some point, within the next three to five years I would say, without a doubt there'll be plenty of trials going on.

6. What next for renewable energy in the Gas Training Package?

Raja Ginting: I'd like to answer that question Paul, thanks for that. I guess for this year we've finalized the drafts for the hydrogen materials and also storage and reinjection of gas, so that's probably our kind of answer to the emerging renewable energy trend. We are going to keep monitoring whether the units are fit for purpose, whether the units and the skill sets are attractive to the industry to use and we'll monitor whatever feedback we receive from the industry. So that's definitely the next step, the second step would be to, as Michael pointed out there's that discussion around biogas or perhaps if there's any potential work to be done around you know strengthening the electrolyzer or electrolysis component from the gas training package development. There's that discussion as well, however, again we'd like to hear from you if there's any if there's anything that we need to consult with the IRC or the IRCs needs to talk about internally or with other IRCs. I guess these webinars can be utilized as an engagement point with the stakeholders.

7. Some pilot projects may involve transmission of hydrogen blended natural gas. Hydrogen embrittlement of transmission pipelines is an issue that is still being researched. Will the training focus on this issue and if so, will it be flexible enough to cope with potential research outcomes?

Michael Broomhead: Thanks for that Enzo, it's probably getting a little bit more out of my area of expertise. I'm mainly distribution and not transport or transition, but from what I've been told yes, there's definitely a risk on the higher pressure when hydrogens kept at a high pressure of embrittlement with metallic pipes and we've predominantly focused on

distribution units of competency at the moment because that's mainly where all the trials are taking place and the blending is going to be going into the distribution network. But we know that there are trials, and they are looking as you've rightly pointed out Enzo that they are looking at the improvement of the transmission pipelines from what we've been told going through the TAC. There is some hydrogen pipelines in America, 100% hydrogen pipelines that have been successfully running for a number of years and so I suppose that will be part of that research and trial sets as well and looking at how that's reacting. Raj, I'm not sure if you've got anything to add to that Raja.

Raja Ginting: Thanks Michael, yes thanks for the question Enzo. Yes, there have been some Units of Competency reviewed within the hydrogen technology project to ensure that those units are ready. Those units are around commission or decommission gas transmission pipelines work in proximity of transmission pipeline, construction and laying, coordinating transmission pipeline construction operations. So, as Michael pointed out, the not-too-distant future needs that we are addressing is focusing on the distribution networks particularly the new units of competency. But the review units of competency or the existing units of competency from the gas training package already exist and we've reviewed those units to be able to be contextualized for hydrogen. So again, it's a moving thing with a lot of moving parts, but at least you know we've got the coverage around the distribution networks ready and also, we've reviewed some units around the transmission pipelines as well.

8. Did COVID-19 have an impact on the IRC?

Michael Broomhead: From my point of view as a member of the IRC and TAC it did impact it from I suppose a networking point of view, because it was all over teams and zoom etc. You don't get that opportunity to network between discussions with different sectors, so it does impact from that point of view, but the meetings still went ahead. I believe that we actually developed better, because you could be more focused you set aside that time and you just listen to each other really well. I did actually [find] that it worked really well, nothing to take away from face-to-face meetings, I think they are the best way of discussing and developing, but it definitely didn't impact us that much, it was more, I'd say more positive than negative.

Paul Walsh: Yeah, thanks Michael, definitely some lessons learned out of what was a probably a 10-year acceleration in the use of technology for the way we collaborate and work together which the COVID thing was a great experiment to exhort but notwithstanding some terrible things that came out of COVID. But certainly, some opportunities for us to find new ways including the way we're collaborating and consulting today talking industry, so lots of good opportunities to come out of that.

9. Thanks for all the great information. Do you have any thoughts on the potential creation of hydrogen micro-credentials /short courses? How to ensure national consistency, avoiding duplication etc? Thanks

Raja Ginting: In terms of micro credentials so with this technical advisory committee has also drafted three new skill sets for hydrogen and they're around the basic safety skill set. The other one is for injecting hydrogen into the distribution networks and also monitoring and controlling hydrogen using control systems Skill Set. So, in terms of making sure that we are in harmony with stakeholders in industry sectors or enterprises or training package

stakeholders across the nation, we I guess we need to be able to firstly have them in the room you know engage with them in our consultation activities and that's what we did with the technical advisory committee. So that's what the first step of engaging with everyone from across the country across states and jurisdiction for everyone to bring their own expertise and knowledge and trials of the results of their own trials, so that we have that standardized or harmonized approach. I think from the training package development process, once the draft materials are completed, we go through the STA consultation, the IRC approval and the submission to the AISC. Obviously, the products then become nationally recognised and that's when these competency standards technically have been finalized. I guess consultation activities have to keep on going and we will keep asking for feedback from you, from stakeholders just to let us know whether the units and the products (the qualifications) are fit for purpose. If you come from hydrogen or from LPG or from LNG please let us know, so that's I guess that's the only way we can know, that the products that we develop are fit for purpose. Michael, perhaps would you like to add anything to that?

Michael Broomhead: I mean in regard to short courses the unit of competency applies safety practices procedures and compliance standards for handling hydrogen gas. That would be the most relevant as a cross-sector short course and a general one. So, if you were going to develop a syllabus based on one of the Unit of Competencies, that one will be a key one initially for anyone related to the hydrogen no matter where you are in the hydrogen chain. So, I think that already we have developed some Units of Competency which are nationally recognised through the TAC and the IRC and Lauren I think that one would be the one, that potentially industry could follow initially.

Paul Walsh: Thanks both, look and of course on the whole debate around micro credentials, short courses, skill sets as we like to call them in national training packages, still being very much across both from a federal perspective but also from the states and territories (who ultimately are responsible for funding). But again, your question or your comment about national consistency from our view putting things in a national training package gives that opportunity for national consistency. There are still other ways people can train and scale up their workforces outside of the national system, but if you're looking for national consistency there's certainly a great framework there with national training packages but again, thank you very much for the question.

10. Given the obstacles still facing injecting plus the ongoing testing and development of combustion appliances towards 100%, will domestic and commercial onsite production, storage and use have a stronger start over blending into the existing networks and combustion?

Michael Broomhead: Well, I know the appliance manufacturers are looking at their appliances to run on 100% hydrogen, they'll be testing and trialling them. Will domestic and commercial onset production storage and use have a stronger stamp? I don't believe that the infrastructure is there for the 100% yet. They'll be upgrading in the required on the networks and on the pipelines and blending will be the smoother transition so that will assist in the smooth transition over to the 100% hydrogen. I know in Europe they have already got hydrogen ready appliances which are selling on the market. They can be used for blended or eventually 100% hydrogen, so the technology is there and a little bit like your

HD ready TVs from 10, 15 years ago, hydrogen ready appliances is probably the better option and that will help educate the public as well in regards to hydrogen.

11. What is the role of policy in accompanying/accelerating the industry-led skills development for the hydrogen economy?

Raja Ginting: I guess we're really dependent on the regulations and the policies around where when we can start you know the hydrogen production or distribution or blending with the natural gas. I guess a lot of the activities around hydrogen in terms of skills development is currently just preparing and being ready when the signal to go ahead is given. And as you know, we've pointed out earlier some hydrogen plants are currently doing trials and then making sure the safety aspects are all covered, and we continue to review what needs to be improved and what areas need to be looked at and things like that. So, I guess again as Michael pointed out as well when we get the go ahead in terms of the hydrogen industry I guess that's when we really can start to take off. But at least from the skills development the gas industry wanted to be ready for it. That's why we decided to address the skills needs by developing those new units and reviewing those Units of Competencies and also developing new Skill Sets. But yeah, it's a really a good question and not one that I guess can be answered easily. It's a lot of even from what the feedback that I've gotten from the Australian Hydrogen Council, there's a lot of precaution that needs to be taken in terms of hydrogen because we want to make sure it's safe. There's also that social license aspect of it and we want to make sure everything's ready in place before the whole technology takes off.

Michael Broomhead: Yeah, I think it was you did a little research Raja in regards to the utilities industry and training packages and it could be that we once approved we would be the first one in the world to get our training package released.

Raja Ginting: Yeah absolutely, at least nationally we're the first IRC to have attempted to address the skills needs for hydrogen. I know that other training packages may have existing units that perhaps can be contextualized but to actually develop new units specifically for hydrogen based on my understanding, the Gas IRC is the first IRC to attempt to develop those units.

Paul Walsh: Great thanks both and yeah definitely something we're really pleased to be heavily involved with the hydrogen industry. As it stands at the moment and continues to evolve in the Australian Hydrogen Council and others and I know there's a lot of work going on in the states and territories, and we're providing advice there where we possibly can.

12. Sorry if my question was not clear. I was asking about domestic and commercial hydrogen production via small onsite electrolysers. installed on the side of the building, possibly connected to a roof PV system. No network connection at all.

Michael Broomhead: Yes, Robert I mean there is technology in the early stages where they do have these appliances where they can produce hydrogen onsite, again that is in the future. It is occurring, there's development in process, it's not really my area of expertise but it is the way that industry will be going I mean we have that here at our depot in Western Australia and Jandakot, it's a localized hydrogen network just on our depot, where we are blending into the network so it's very similar to what you're asking there.

13. Will you be removing weighting points in your review of the cert II, III & IV?

Raja Ginting: Very good question. Look everything's on the table in terms of the review of the Cert II, III and IV. We would definitely like to hear from the stakeholders, obviously we'll follow the process of training package development from the in fighting for subject matter experts to participate on the Technical Advisory Committee and once we get the SMEs in the room, we'll talk about plenty of things. One of them will be talking about the removal of weighting points, obviously it's not compliant with standards. There's also other things that will be reviewed in the Cert II, III and IV, the use of imported units of competency, the packaging rules and also as I mentioned we've already incorporated some of the new units into the qualifications. But perhaps we want to talk about the existing units that are associated with those qualifications and maybe we want to review again whether for example hydrogen, do we include hydrogen units in Cert II only or Cert III and Cert IV or a combination of different options. But definitely that's going to be one of the agenda items and I'm thankful that somebody raised that question. Look I'm more than happy to hear from you, as a matter of fact I like to use the feedback opportunity or survey opportunity for you to let us know what would you like to see [for] those qualifications, in terms of what we can add, what we can change, what needs to be looked at and things like that.

Michael Broomhead: From my own personal point of view on the weighting points and I would like to have a refresh of those weighting points. I have raised it a few times at the gas IRCs and it will be definitely part or hopefully it will definitely be part of that review of the Cert II, Cert III and IV and then yeah trying to re-address those points.

Paul Walsh: Thanks Michael, thanks Raja, and again it is part of the way that we're reviewing the energy training packages that have had weighting points and so it's again it's a conversation with industry and stakeholders to ensure that it's meeting the needs of everybody and we're going in the right direction. So again, the IRC doesn't make arbitrary decisions, they do it through consultation. Certainly, AIS don't do that but I think there's a view that we can certainly look at that so again thanks for the question.