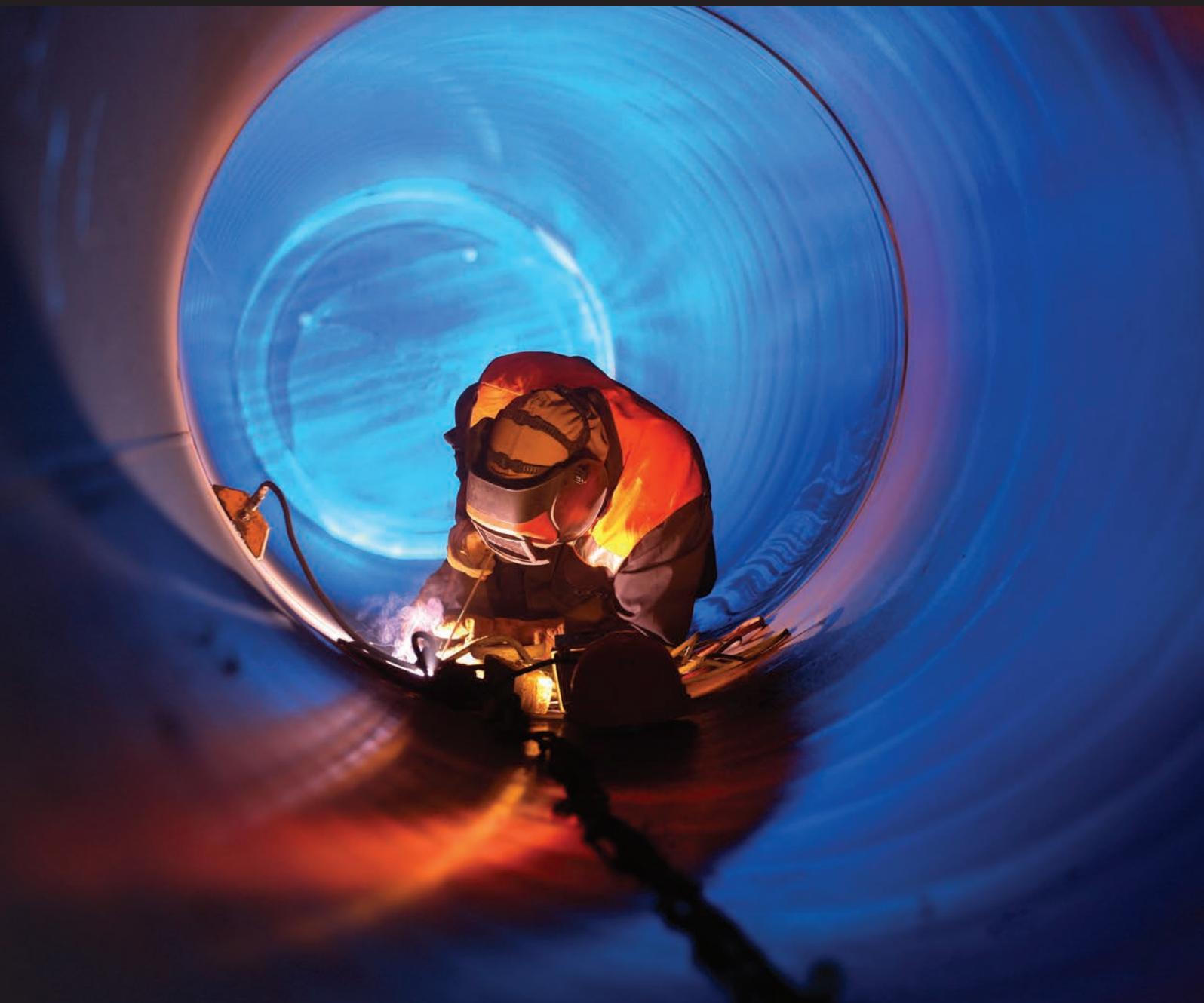




WELD POINT



HIGHLIGHTS



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SINGAPORE WELDING SOCIETY

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Mr Sze Thiam Siong
Mr Kelvin Lee
Mr Edwin Chow

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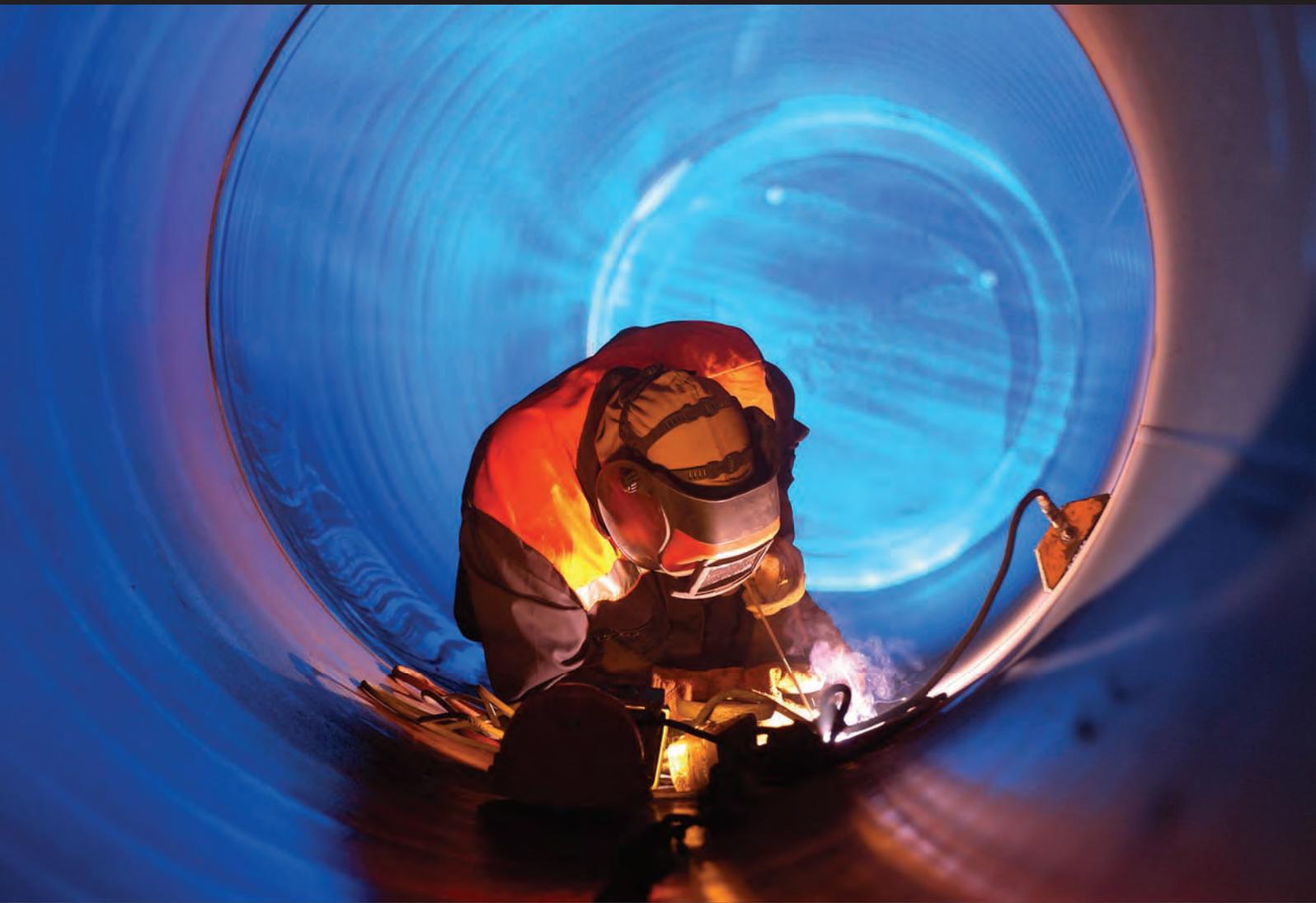
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WWW.SWS.ORG.SG

PRESIDENT'S MESSAGE

Warmest Greetings!

Firstly, my sincere thanks to all friends and comrades in SWS for your excellent support to the council all these years, without which the council would not have been able to face challenges, identify potential areas of interest and facilitate growth for our society! I am also grateful to my fellow council members for their support and trust in electing me as the new President. It is an honour to be elected to serve in this capacity and I am really humbled. My promise to all is that I shall do my best to uphold the values that our society has been known for, while pursuing our objectives to bring value to all members. In this regard, I seek everyone's continued support to the new Council / Office bearers.



On behalf of every one, I would like to express my heartfelt appreciation and gratitude to the immediate Past President, Mr. Sze Thiam Siong, for his excellent leadership during the past two years. Although it was our wish that he should continue longer, he declined and strongly advocated renewal. However, the current Council is fortunate to have the mentorship and continued services of two eminent past presidents, Mr. Chow Ngai Mun and Mr. Sze Thiam Siong. Thank you gentlemen!

SG50 and SWS

This year, we rejoiced in the SG50 celebrations which kicked-off in January and by the time you read this article, we would have celebrated Singapore's 50th birthday with a colourful and meaningful Jubilee year! It was a proud moment for me to be among fellow Singaporeans at the Padang on 9th August for the grand NDP 2015 celebration!

SWS however has a shorter history... but, not too short! On 8th July, our society has completed 38 long

years of association and growth with the nation while also representing Singapore's welding community in the regional and international arena! This is something we all can be proud of!

Just like Singapore, we may be small in size... but, our dreams and achievements are not limited by our physical size. SWS stands firmly and continues to build on our foundation of trust, knowledge and the feeling of being connected!

Looking ahead until 2020

The Ministry of Trade and Industry's (MTI) recent report forecasts that the GDP growth for the rest of the decade is expected to moderate from that experienced in the past five years. While the **workforce growth is expected to slow** significantly in the years ahead, **productivity growth is expected to pick up**. This will most possibly start happening as the nationwide productivity efforts championed by the government gains momentum.

Is our welding community pursuing and embracing productivity initiatives? Are we using or even trying out available technologies to enhance productivity in welding and related work? It is not my intention to answer these questions here, but to get all of us to ponder over these and find our own solutions...

Slowing economy, but emphasis on productivity growth – Where do we stand?

Simply put, productivity represents the efficiency with which resources are utilised. Factors such as economies of scale, exposure to competition and the **diffusion of technological knowledge** have been demonstrated to increase this progress.

Over the years, you would have certainly noticed that our society's activities are sprawled over areas like education, skills enhancement, certification, workforce optimisation (through the Common Welder Qualification Scheme), welding technology, welding standardisation, technical talks/seminars, international networking, etc. All these are done with good reasons! I too, strongly believe that the creation and application of knowledge is critical to the ability of organisations and individuals to develop in a competitive environment. Such strengths allow us to upgrade our comparative advantage and position ourselves in higher value-added industries, activities and segments of the marketplace.

Together, let's continue to pursue this for further growth!

What's coming up at SWS?

1. Education, Training, Skills enhancement & Certification

- Signed an agreement with the Japan Welding Engineering Society (JWES). Look forward to the first run of the Welding Engineer Program hopefully by Nov 2015 or Jan 2016.
- Discussion is in progress with GSI-SLV of Germany on the IIW International Welding Engineer (IWE) and International Welding Technologist (IWT) programs (distance-learning).
- Acting on members' requests, we are in discussion with the IIW to bring back the transition program for IWE and IWT.

- We continue to provide API, AWS and Visual Inspection of welds training courses. The demand for these courses is on the decline in recent years.
- Our certification programs such as BINDT PCN and 'Common Welder Qualification Scheme (CWQS)' will continue to help in skills enhancement.
- We are exploring possible co-hosting of seminars with other Singapore societies in niche areas of interest such as special alloys, materials, structures, NDT, automation, etc.

2. Participation in national, regional and international initiatives/activities

- We will continue to work with various government and non-government agencies such as Spring Singapore, Singapore Accreditation Council (SAC) and Singapore Manufacturer Federation (SMF) – Standard Development Organization (SDO).
- We will continue to work with other welding associations; Asian Welding Federation (AWF) and the International Institute of Welding (IIW) to bring technological advancement, productivity and other benefits to Singapore and our members.
- As done in the past, we will continue to support our members' participation in international welding competitions. We have planned to organise the next Singapore Welding Competition in 2016!
- We will be applying to host the IIW Annual Assembly in Singapore in 2020! Our last edition in 2009 was a big success!

3. Assistance in the development of national and/or international standards

- We will continue to support Spring Singapore in the ISO/TC 44 and its subcommittees as a full voting member.
- We will continue to work in the General Engineering & Safety Standards Committee (GESSC) and in the review of SS 510:2005 (Safety in Welding & Cutting, and other operations involving the use of heat).
- We will continue to be represented at the various work groups and technical committees in the

Singapore Laboratory Accreditation Scheme (Singlas) and Council Committee for Inspection Body (CCIB) of the Singapore Accreditation Council (SAC).

4. Membership, Fellowship and networking opportunities

- Our new membership drive over the past two years, has seen a sharp increase in the number of new members joining the Society. This is one of our best recruitment efforts in recent years. The society is only as strong as its members!
- For the first time, the previous Council honoured ten distinguished members as 'Fellows' for their contributions in the field of welding science and technology and for promoting and sustaining the professional stature of welding. We will make this 'Fellowship' award a regular event as the society continues to grow.
- We will introduce new and interesting topics for our ever popular 'Technical Talks' which in recent times, averages at one per month! We are also planning to bring in some 'soft-skill' topics.
- Our annual 'Golf networking' event has been popular with our Corporate and Full members! This will continue to be in the SWS' calendar of events.
- We have planned to start a 'Bowling networking' event soon! This is to bring our members closer together. Please look out for the details!
- Our ever popular Members' Night will be featured as an annual event!

5. Weldpoint publication – Our reach to our members and beyond

- The publication committee continues to produce quality reading material and on-time updates for our members. Weldpoint continues to showcase our society's activities and provides technical articles on welding technology, materials development and welding standards. Weldpoint is also available online.
- With our wide outreach to members and associated organisations across the globe, we continue to attract advertisements that help us

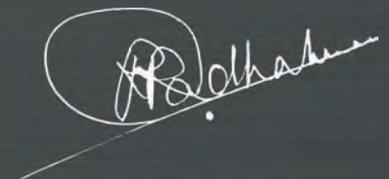
sustain the cost of publication. Supported by our advertising corporate members, we will continue to bring value-packed benefits in Weldpoint.

6. Our own Home – SWS Office and training facilities

- We were encouraged by our members' mandate at the recent AGM to procure our own office cum training facilities and thus have formed a committee to work on it.
- The new committee has already started short-listing suitable areas and development projects that would suit SWS.
- This is a big step in the history of SWS and the Council is fully committed to help SWS establish its own 'Home Sweet Home'! We look forward to this occasion.

SWS has accumulated healthy funds to help sustain its activities. We will have our 'SWS Home' soon. SWS membership is growing and there is renewed interests in our technical talks and networking events. We will continue to be prudent in our spending and the Council is committed to work hard to bring value to all members!

I wish to thank all members for giving us the strong support to serve you. We will continue to engage all members to realise our society's vision, mission and strategic objectives! Together, let's weld a great future for SWS and for every one of us!



Perianan Radhakrishnan
President
Singapore Welding Society



THE SWS MEMBERSHIP PROGRAM

Your gateway to all things welding related

With its widespread reach, SWS gives its members a global platform through which they can interact with other industry professionals for discussions and exchanges of information. In addition, members are privy to updates and invites to the various industry exhibitions and talks around region. With the Society's increasing stake in the industry, SWS is now involved in the development of national and international standards of welding as well.

Join the throngs of people in a society that is empowered with the ability to influence change in the welding industry. Be a part of the SWS today.

Benefits

1. Assisting in the development of national/international standards
2. Learning from experts in the industry through technical talks/forums
3. Networking at the member's night and annual dinner
4. Engaging of technical consultancy services
5. Participating in the common welder qualification scheme
6. Participating in organised tours to welding related companies/industries (locally & overseas)
7. Promoting corporate member's services and products
8. Sharing valuable experience with the welding community
9. Opportunities for networking with others in welding industry
10. Participating in the Society's activities
11. Participating in the international certification programs such as American Welding Society (AWS), American Petroleum Institute (API), British Institute of Nondestructive Testing (BINDT), International Institute of Welding (IIW), SWS ICAS, etc.
12. Attending training courses, i.e. AWS, API, IIW, SWS, etc.
13. Corporate discounts for attending training courses/seminars/workshops
14. Updating of regional and international activities
15. Providing internet-based connectivity through iMOS
16. Giving back to the industry and helping the Society to advance forward
17. Assisting members in obtaining selected technical and research papers on welding and related technology from the library of local and international institutions (IIW, etc).

TYPE OF MEMBERSHIP	CRITERIA	JOINING FEE	ANNUAL SUBSCRIPTION	3 YEAR SUBSCRIPTION	5 YEAR SUBSCRIPTION
FULL MEMBER	Engineering/physical science graduates from recognized universities/colleges; Or with suitable education and training in welding or related technologies with 3 years employment as welding personnel as defined by the IIW, with approval from the SWS Council	S\$20	S\$80	S\$200	S\$320
ASSOCIATE MEMBER	Engaged or Interested in welding or related activities, with approval from the SWS Council	S\$20	S\$80	S\$200	S\$320
CORPORATE MEMBER	Organisations such as a company/government body/institution or other body, interested or engaged in welding or related activities	S\$500	S\$500	-	-
STUDENT MEMBER	Individuals undergoing a recognised welding/related course	S\$20	S\$80	S\$200	S\$320

Membership fees can be paid via Cash, Cheque, or Credit Card

- Cash: Please make payment at SWS Secretariat office during office hours 9:00 am – 5:00pm.
- Cheque: Please issue a cross cheque made payable to "Singapore Welding Society".
- Credit Card: Please sign on the credit card verification form, with a copy of your credit card, back and front, and fax it to (65) 64640186 for processing.

SWS Secretariat Office address:

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SWS 37th ANNUAL GENERAL MEETING

By Mr. Eddie Ko, Honorary Secretary, SWS



The 37th Annual General Meeting was held on 29th May, 2015 at the Civil Service Club's Hilltop Garden Restaurant in Bukit Batok. Members arriving early for registration were able to help themselves to the refreshments and submit their ballot papers. The SWS Honorary Secretary, Mr. Eddie Ko, called the AGM to order at 6.30 pm after a half-hour delay due to insufficient quorum.



The evening meeting commenced with the SWS President, Mr. Sze Thiam Siong, welcoming SWS members and introducing the present members of the SWS Council. The items on the Agenda for discussion were presented as follows:

- To confirm the minutes of the 36th Annual General Meeting held on 30th May 2014
- To consider, approve, and adopt the Annual/President's Report of the Council
- To consider, approve, and adopt the Statement of Accounts and Balance Sheet for the year 2014/2015
- To elect Council members for the year 2015/2016
- Any other business



In his Annual Report, Mr. Sze reviewed the SWS mission and vision to be the "centre of excellence for welding and joining". With the aid of power point slides, he



highlighted the nine strategic objectives which formed the activities and events that were organised for the year 2014/2015.

SWS Assistant Honorary Treasurer Mr. Goh Lak Hee presented the audited financial statement for the year ending 31st March 2015. The accumulated fund has risen to an all-time high of over \$1.85 million.

Both the President's and Treasurer's reports were approved and adopted unanimously.

In accordance with the constitution, the term of office of three council members i.e. Mr. Sze Thiam Siong, Mr. Chow Ngai Mun and Mr. Ho Bee Leong would have ended and both Mr. Sze and Mr. Chow had offered themselves up for re-election. In addition, two new candidates, Mr. Thomas Teo and Mr. Yusooof Aynuddin have also filed their names for nomination for this year's three available seats in the council.

To assist in the balloting process, three of our members Mr. Kelvin Teo, Ms. Serene Lee and Mr. Alex Ong had kindly volunteered to act as scrutinizers. With the votes counted and results of the ballot announced, the council members for the year 2015/2016 are as follows:

1	Mr. Chow Ngai Mun
2	Mr. Eddie Ko Beng Lee
3	Mr. Foo Hoe Ming

4	Mr. Goh Lak Hee
5	Mr. Kelvin Lee Chee Fatt
6	Mr. Khoo Kok Leong
7	Mr. Lim Poh Huat, Ivan
8	Mr. Md Habibur Rahman
9	Mr. Perianan Radhakrishnan
10	Mr. Schweizer Juerg
11	Mr. Sun Zheng
12	Mr. Sze Thiam Siong
13	Mr. William Chong Jun Hua
14	Mr. Yusooof Aynuddin
15	Mr. Zhou Wei

Mr. Sze presented Resolution No. 15A which concerned the purchase of an office cum training space (subject to a maximum sum of \$800K). He gave a brief introduction and highlighted the many benefits of having a permanent office. After some deliberation and discussion, the ballot papers were counted and results revealed that members have unanimously approved in favour of the purchase.

At the end of the AGM, Mr. Sze thanked all members for their continual support, with special thanks to the three scrutinizers for their invaluable contribution in overseeing the voting process.

A delectable sit-down and networking dinner was an appropriate finale to end the successful AGM and Fellowship Awards Ceremony.

SWS FELLOWSHIP AWARD



The ten recipients are:

1. Mr Ang Chee Pheng
2. Mr Chow Ngai Mun
3. Mr Chew Thiam Huat
4. Mr Ko Beng Lee Eddie
5. Mr Goh Wang Tai Albert
6. Mr Heng Keng Wah
7. Dr Jens Tronskar
8. Dr Sun Zheng
9. Mr Sze Thiam Siong
10. Dr Zhou Wei

The 2015 Fellowship Award given to the recipients in attendance at the AGM

From left: Dr. Sun Zheng, Mr. Eddie Ko, Mr. Chow Ngai Mun, Mr. Sze Thiam Siong, Mr. Albert Goh, Mr. Chew Thiam Huat, Dr. Zhou Wei

In a special ceremony held on 29th May 2015 immediately following the AGM, the first batch of ten members received the Fellowship title, **Fellow of SWS (FSWS)**. These pioneering members have been selected based on their significant and distinguished contribution to the welding profession and the Singapore Welding Society.

Prior to receiving the award from President Mr. Sze Thiam Siong, a brief citation to honour each of the recipients was read by Vice President Mr. Perianan Radhakrishnan.

SWS extends its warmest congratulations to the 10 recipients of the FSWS title!

PROFILES OF THE SWS FELLOWSHIP AWARD RECIPIENTS

Mr Albert Goh

- Employed by Singapore Refining Company Pte Ltd (SRC) as a Senior Inspection/Welding Engineer in the Inspection & Reliability Department in SRC, he is involved in the improvement of reliability and evaluation of welding procedure for low/high alloy steel in piping, pressure vessel and tube end strength welding
- Involved in welding metallurgy, fabrication works (piping, drum, tower, etc), quality control, NDT, code & standard interpretation for process piping & pressure vessels, he has 30 years working experience under his belt
- His qualifications & certifications include a Diploma in Welding from IIW, as well as a Diploma in Electronic & Com Engineering from Singapore Polytechnic, European Welding inspector Level 4, CSWIP Welding Inspector Cert, TWI Interpretation of Weld Radiographs Part B Cert, API 570 Cert, MT Level 2 ASNT/ACCP, NTC Grade 2 & 3 Arc Welding Cert, C &

G Mechanical Engineering Cert, C & G Arc Welding Craft Practice Cert

- He has been active in SWS CWQS committee since 1990 and is involved in updating all new test numbers in the CWQS system for welders taking the qualification tests on carbon steel, stainless steel and high alloy steel
- He has written 130 WPS/PQRs as well as the welding manual for the Integrity & Reliability Department

Dr Zhou Wei

- An Associate Professor in School of Mechanical and Aerospace Engineering, NTU
- Served in the SWS Council for more than 10 years as Chairman of Consultancy Committee, Vice President and currently as Chairman of Welding Technology & Standardization Committee

- He also served as Chairman of Board of Examiners for IIW Authorized National Body of Singapore (S-ANB)
- Has conducted extensive researches on failure mechanisms of welded structures since 1985 and contributed to development of ISO and Singapore standards as Chairman of National Committee on ISO/TC 44 Welding and Allied Processes and member of GESSC.

Mr Chew Thiam Huat

- 30 years of experience in welding process and welding metallurgy, particularly in welding of high Ni-Cr alloy steel used for radiant tubes in cracking furnaces of ethylene producing plants.
- Obtained his Bachelor of Engineering (Mechanical & Production) in 1985 & Master of Engineering (Mechanical) in 1992, both from National University of Singapore, and is also certified in AWS-CWI, API 510, 570 & 653.
- He joined Petrochemical Corporation of Singapore (Pte) Ltd (in short PCS) in 1985, holding various positions as Mechanical Engineer, Turn-around Inspector/Planner, Construction Principal Planner / Safety Custodian.
- Currently the Maintenance Manager of PCS, he is the alternate member of PCS in the EDB's PCMMC (Process Construction & Maintenance Management Committee) and a member of the PCM Productivity Council
- He contributed to the formation of CWQS during its founding stage and has been a Governing Board member of the S-ANB of the IIW (International Institute of Welding) since 2008
- He actively promotes quality welding & skills upgrading among in-house contractors of PCS.

Mr Chow Ngai Mun

- With 31 years of experience in welding and currently holding various management positions and consultancy roles in MNCs and local organisations, hj
- Joined SWS since 1991 and has been holding various positions as Honorary Secretary, Vice President and President since 1995
- An NTU advisory committee member for School of Material; Working groups for SAC (received Gold Award) on Structural and inspection of pressure vessels; task force member to review the regulatory

requirements pertaining to pressure vessels; council member of WDA on process industry and Chemicals Technical committee member for WSQ; Focal Group and working group member for SPRING, ISO/CASCO, etc.

- Received his BEng and MSc from NUS. He is a Chartered Engineer (UK); Fellow of The IOM3 (UK); International Welding Engineer (IIW); ASNT Level III (RT, UT, PT, and MT); AWS-CWI; API 510, 653, 570, 571, 580; PCN Level II TOFD, IRCA QMS Register Lead Assessor (UK).

Mr Heng Keng Wah

- His expertise is in Non-Destructive Testing, being a Fellow of the British Institute of Non-Destructive Testing since 1985
- Former Associate Professor, School of Materials Science & Engineering, Nanyang Technological University (NTU), 1991-2004
- Currently serving as Part-time lecturer in a course on Corrosion Engineering in NTU, School of Materials, Science & Engineering; SINGLAS Technical Assessor for SPRING, Singapore, where he received a Distinguished SAC Assessor Award in 2014 Chairman, Common Welder Certification Scheme (CWCS) Documentation Committee of the Asian Welding Federation ; Chairman, Common Welder Certification Scheme (CWCS) Board of Examiners of the Asian Welding Federation

Dr Sun Zheng

- An expert in welding processes and welding metallurgy with over 30 years of experience in welding research and development, he has also published over 120 papers in refereed journals and conference proceedings
- He was the joint recipient of the 1995 National Technology Award for contributions in marine repair processes using electron beam technology.
- He joined SWS in 1995 and currently holds the position of Vice President.
- He is also a Technical Management Board (TMB) member of the International Institute of Welding (IIW)

Dr Jen Tronskar

- An expert in welding processes, welding metallurgy and weld structural integrity, he received his Master in Applied Physics and Physical Metallurgy from NTH in

Norway 1980 and was awarded a Doctor of Philosophy (Ph.D.) in Mechanical Engineering and Fracture Mechanics Assessment of Floating Production and Storage Vessels (FPSOs) and Ships by NUS in 2002

- With over 34 years of experience of welding research and development, he has published over 90 papers in refereed journals and conference proceedings
- A member of SWS, AWS, ASME, and NACE, he is a senior member of The Welding Institute (SenMweldInst), a certified International Welding Engineer (IWE) and a chartered engineer in UK (C.Eng)
- Currently holding the position as Vice President and Chief Technology Officer in DNV GL Singapore Pte. Ltd. Deepwater Centre, he is also a member of the NTU Advisory Board for Mechanical and Aeronautical Engineering

Mr Eddie Ko Beng Lee

- Actively involved in welding processes and materials, he has over 38 years of experience working in various industries including marine, construction, aerospace, power generation, petrochemical and Oil & Gas.
- A joint recipient of the National Technology Award, his pioneering work on the use of the Electron Beam Welding in the repair of Marine Diesel engines was recognised by the National Science & Technology Board
- His early academic years were spent in the UK where he studied Naval Architecture and thereafter obtained a Master of Science degree in Welding Technology & Management, thereafter receiving his Chartered Engineer's status in 1985.
- A council member of the Singapore Welding Society since 1991, he has served in various capacities as Chairman of Technical Talks, Chairman of International Affairs, Honorary Treasurer, Honorary Secretary, Chief Executive of S-ANB (Authorised National Board of IIW), and has also represented SWS as member of the ISO/TC 44 – Welding & Allied Processes National Mirror Committee (NMC)
- His current research interest is in the field of Laser Additive Manufacturing

Mr Sze Thiam Siong

- The immediate President of Singapore Welding Society, he joined SWS in 1980 and has held various positions as Vice President, Honorary Secretary,

Honorary Treasurer, as well as Chairman of various other committees

- A Fellow member of the Non-Destructive Testing Society Singapore (NDTSS), he also sits in various committees in both governmental and non-governmental bodies, professional and trade associations
- The co-author of a Resource Book on Structural Welding for Design & Construction published by the Building & Construction Authority (BCA) and Singapore Structural Steel Society (SSSS), he is also a contributor of two guidebooks on NDT published by the International Atomic Energy Agency (IAEA)
- He has been appointed by the National Environment Agency (NEA) as the National Coordinator for the International Atomic Energy Agency (IAEA) Industrial Project for APAC on the Application of Isotopes & Radiation Technology and is also a member of the NEA Advisory Committee on Radiation & Nuclear Science
- With over 35 years of experience in welding inspection and testing, he lectures regularly at the Singapore Quality Institute, Singapore Structural Steel Society, Institution Engineers Singapore, BCA Academy & SWS
- He has received three merit awards; Singapore Accreditation Council (2006), Standard Council (2007) and Spring Singapore (2012)

Ang Chee Pheng

- Ang Chee Pheng has served more than 20 years for SWS. He joined SWS in 1986 and served as Honorary Treasurer, Vice President and then as President from 2000 to 2012
- He played a significant role in creating the Common Welder Qualification System (CWQS) for SWS. This system is also recognised by EDB and MOM for the application of low levy for skilled workers in the Process industry. He is also a founder member of the ASEAN Welding Federation and was its first President
- In addition, he was also a founder member of the Asian Welding Federation (AWF) and continues to be the AWF Secretary General since its inauguration. He is also the current Vice President of the International Institute of Welding (IIW)
- He retired from Shell as the Regional Reliability and Maintenance Manager, having served for more than 30 years

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2015 IIW ANNUAL ASSEMBLY IN HELSINKI, FINLAND

By Dr. Sun Zheng, Vice President, SWS, and Mr. Eddie Ko, Honorary Secretary, SWS

The 68th Annual Assembly of the International Institute of Welding (IIW) and International Conference, organised by The Welding Society of Finland, was successfully held in Helsinki, Finland from 28th June to 3rd July 2015. The IIW Annual Assembly and International Conference are arranged once a year in one of the member countries of the organisation. This round, Finland hosted one of the biggest Annual Assemblies with the near-record number of 885 assembly and conference attendees from 54 different countries. The largest contingents were from Germany (115), Japan (98), Finland (96) and the Republic of Korea (50), respectively. The IIW's

recent focus on Young Professionals was also rewarded by the attendance and participation of over 80 'future leaders' of the global welding sector. This year's event was also the third time that the Annual Assembly has been held in Finland in the 68 years of IIW's history.

IIW is a global welding organisation and its Annual Assembly & International Conference is a great place for networking among different experts. This global welding event was opened at the iconic Finlandia Hall on 28th of June. The following 2015 IIW Awards were presented during the opening ceremony.

AWARD NAME	PRESENTED TO
Henry Granjon Prize Category A: Joining and Fabrication Technology	Dr-Ing André Hälsig (Germany)
Henry Granjon Prize Category B: Materials Behaviour and Weldability	Dr Eun-Joon Chun (Japan)
Henry Granjon Prize Category C: Design and Structural Integrity	Dr Philipp Schempp (Germany)
Henry Granjon Prize Category D: Human Related Subjects	Dr Yukang Liu (USA)
Welding in the World Best Paper Award 2014	Dr Elin Marianne Westin (Austria)
Yoshiaki Arata Award	Prof Dr Emeritus Einar Halmøy (Norway)
Walter Edström Medal	Prof Dr-In Jan Pawel Pilarczyk (Poland)
Arthur Smith Award	Prof Luisa Coutinho (Portugal)
Thomas Medal	Dr H Glenn Ziegenfuss (USA)
Halil Kaya Gedik Award	Prof Dr Stephen Liu (USA)
Regional Activities Award	Dr-Eng Marin Georgiev Beloev (Bulgaria) and Prof Dr Petar Ivanov Darjanov (Bulgaria)

In addition to the usual Commissions, Select Committees and Study Groups and Units, special meetings and events, this year's Assembly included an Additive Manufacturing Workshop, a Seminar on Structural Health Monitoring and a Workshop on Establishing a National Welding Capability. Such events, often jointly organised by a number of IIW Commissions, highlight the innovation and cross pollination of ideas and knowledge which are the hallmark of the IIW and are invaluable to the welding community worldwide.

The IIW 2015 International Conference on **High Strength Steels – Challenges and Applications** was held from 2nd to 3rd July, 2015. The Conference was opened with the distinguished Portevin Lecture **Weldable High-Strength Steels: Challenges and Engineering Applications** delivered by eminent scientist Prof. David Porter from Oulu University, Finland. Prof Porter has more than 30 years of experience developing new and novel high strength steel grades for applications in welded structures. More than 100 high quality papers from 26 countries were presented during the 20 sessions. The conference sessions focused on challenges and solutions covering all aspects of joining, processing and design performance of high strength materials, highlighting their successful applications in industrial and commercial products. The topics presented and discussed included the areas of:

- Pressure vessel and process industry applications
- Materials performance subject to welding
- Design and fabrication
- Aeronautical and aerospace applications
- Welding physics
- Shipbuilding
- Energy industry applications
- Fatigue and fracture
- Transportation industry applications
- Keyhole phenomena in laser welding
- Innovative joining methods for high strength materials
- Laser hybrid welding

The International Authorisation Board (IAB) including the IAB Group A (Education, Training & Qualification) and Group B (Implementation & Authorisation) continued to meet over the sessions spanning 3 days, which were allocated to identify, develop and implement the IIW's Education, Training, Qualification and Certification systems on a global basis.

The IAB Working Groups reported that almost 11,000 diplomas were awarded worldwide last year, with more than 150 new certificates issued for Personnel and over 200 new Companies certified according to ISO 3834. To further develop its strategy to grow and become self-sustainable IAB will continue to focus on promoting the interest of the international welding community via its members worldwide, as well as their activities of updating and revising existing guidelines and rules and developing new ones which address potential markets.

It is significant to note that new growth in the IAB system has come from outside Europe (which is where both the education and certification systems were first developed), and mainly in the Asian region.

Future IIW Annual Assemblies will be held as follows:

2016: Melbourne, Australia from 10th to 15th July

2017: Shanghai, China from 25th to 30th June

2018: Istanbul, Turkey, TBA

2019: Bratislava, Slovakia, TBA

SWS with the full backing of STB will continue to pursue and bid for the right to host the 2020 IIW Annual Assembly in Singapore.



Working Unit Meeting



IAB meeting

Advanced Joining Solutions And Welding Automation

By Mr. Foo Hoe Ming, Chairman, Technical Talk



The developments on these popular topics were presented on 29th June 2015 at the Manufacturing Productivity Technology Centre of Singapore Institute of Manufacturing Technology (SIMTech).

Enhancing manufacturing productivity is the most prudent objective of SIMTech and the reason for organising this seminar with KUKA and Singapore Welding Society. There have been previous presentations on innovative solutions using friction welding and it is currently being continually further developed.

KUKA Industries – Reis Robotics Singapore Pte Ltd, specialises in innovative and reliable joining and forming processes for a wide range of materials and is one of the world’s leading suppliers of automated production and assembly solutions for sustainable industrial manufacturing.

Friction Welding, Magnetarc Welding and Friction Stir Welding for Joining a Great Variety of Materials

Mr. Andreas Gistl, Head of Sales Advanced Welding Solutions Asia & Pacific from Kuka Industries Germany and Mr. Colins Nicholls, Oil and Gas API Specialist from

Kuka Systems UK Ltd were the day’s guest speakers. Together, they presented the topic: **Friction Welding, Magnetarc Welding and Friction Stir Welding for Joining a Great Variety of Materials.**

The seminar attracted a broad range of audiences from the Oil & Gas, Marine & Offshore, and Aerospace sectors. The presentation provided audiences with valuable insights into the process and application areas of the Advanced Joining Solutions.

The Magnetarc welding process can be used to join hollow sections with wall thicknesses of up to 10mm. Suitable materials are electrically conductive and fusible, such as carbon steel or low-alloy steels, free-cutting steels, cast steel and malleable cast iron. An advantage of Magnetarc welding is its ability to join combinations of the various aforementioned materials to one another. During the process, clamped work pieces are brought into contact for welding. The arc is ignited by moving the work pieces apart in a defined manner with the welding current switched on and rotated by means of a magnetic field. The rotating arc heats the weld surface, while the speed of rotation, orbital path of the arc, progression and quantity of the energy input are precisely controlled. The work pieces are thereafter joined by means of a forging operation.

Friction welding makes use of the heat generated by friction. The parts are rotated and moved towards one another so that their contact surfaces touch. Once the material has been heated to the point where it becomes plastic, the parts are positioned and pressed against one another using high pressure.

The advantage of friction welding is that different materials (steel/brass, steel/copper, steel/aluminium, aluminium/ceramic, etc...) can be joined together. Application examples include valves for internal combustion engines, drill pipes, hydraulic components,

printing rollers, cross members and much more. The heat-affected zone is significantly smaller for friction welding than for other welding processes. No weld pool is formed in the joining zone.

The many benefits described on finished components include fast cycle time, constant heat input with no distortion, weight savings and flexibility in geometry. The speakers furthermore addressed the existing approved weld quality standards for Friction Welding in the Aerospace and Oil & Gas industries such as the API, DNV, NACE and ISO Standards.

The knowledge shared has successfully provided the audience with insights on the joining of different materials in a highly productive manner with good consistent bonding results, as well as how they are able to improve productivity for their own future production in ways previously not possible with conventional welding.

Productivity Improvement: Welding Process Monitoring & Assessment

Mr Pan Dayou, Senior Research Engineer, Joining Technology Group, from SIMTech made a presentation on: **Welding Process Monitoring and Assessment.**

Whilst sharing the fundamentals of the computer-based welding process monitoring system and its applications, he used case studies to illustrate how the computer-based welding monitoring system recorded, stored, and analysed welding data for a variety of welding processes.

The welding software program processed data on real-time interaction and integration with existing system to

enhance manufacturing productivity through welding quality control and welding operation management, better utilisation and availability of control of the welding machines, more economical consumption of welding consumables and electrical energy. In addition to these advantages, the program provides guidance through welder and welding operator training.

Other application potentials are currently being developed to improve welding automation and productivity through the data generated by the Welding Process Monitoring and Assessment System.





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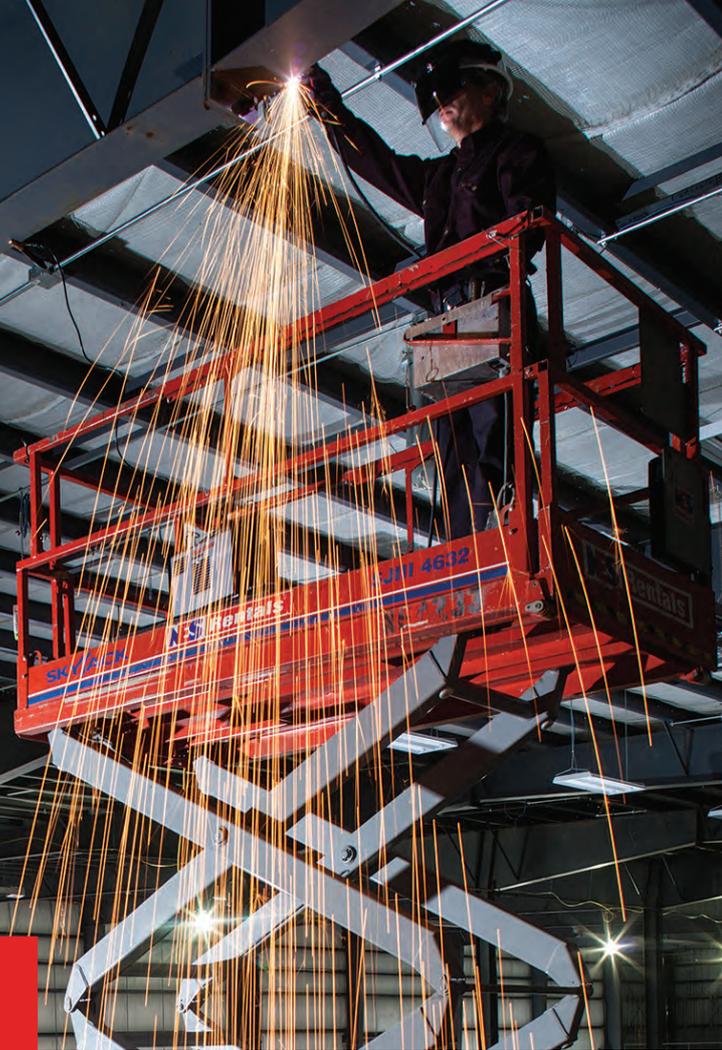
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Announcement on Singapore Welding Competition 2016

The Singapore Welding Competition 2014 was a success. Two winners from the Competition, Mr Vellaichamy Gunasekaran of Sankyu Singapore Pte Ltd (SMAW Category) and Mr Palani Anbarasu of Yongnam Engineering & Construction P/L (GMAW category), were given the opportunity to visit China to represent Singapore in the 2014 Beijing “Arc Cup” International Welding Competition. They clinched the Team bronze medal.

To continue promoting welding excellence as well as providing a platform for the best welders in Singapore to pit their skills,

SWS will be organising the Singapore Welding Competition 2016 on 16th March 2016. The next edition of the welding competition promises to be more interesting, attractive and rewarding. The winners will again have the opportunity to represent Singapore to compete at the 4th Beijing Arc Cup 2016 International Welding Competition in China in June 2016.

More details on the Singapore Welding Competition 2016 will be announced soon. Save the date now and be prepared to participate in this exciting event!

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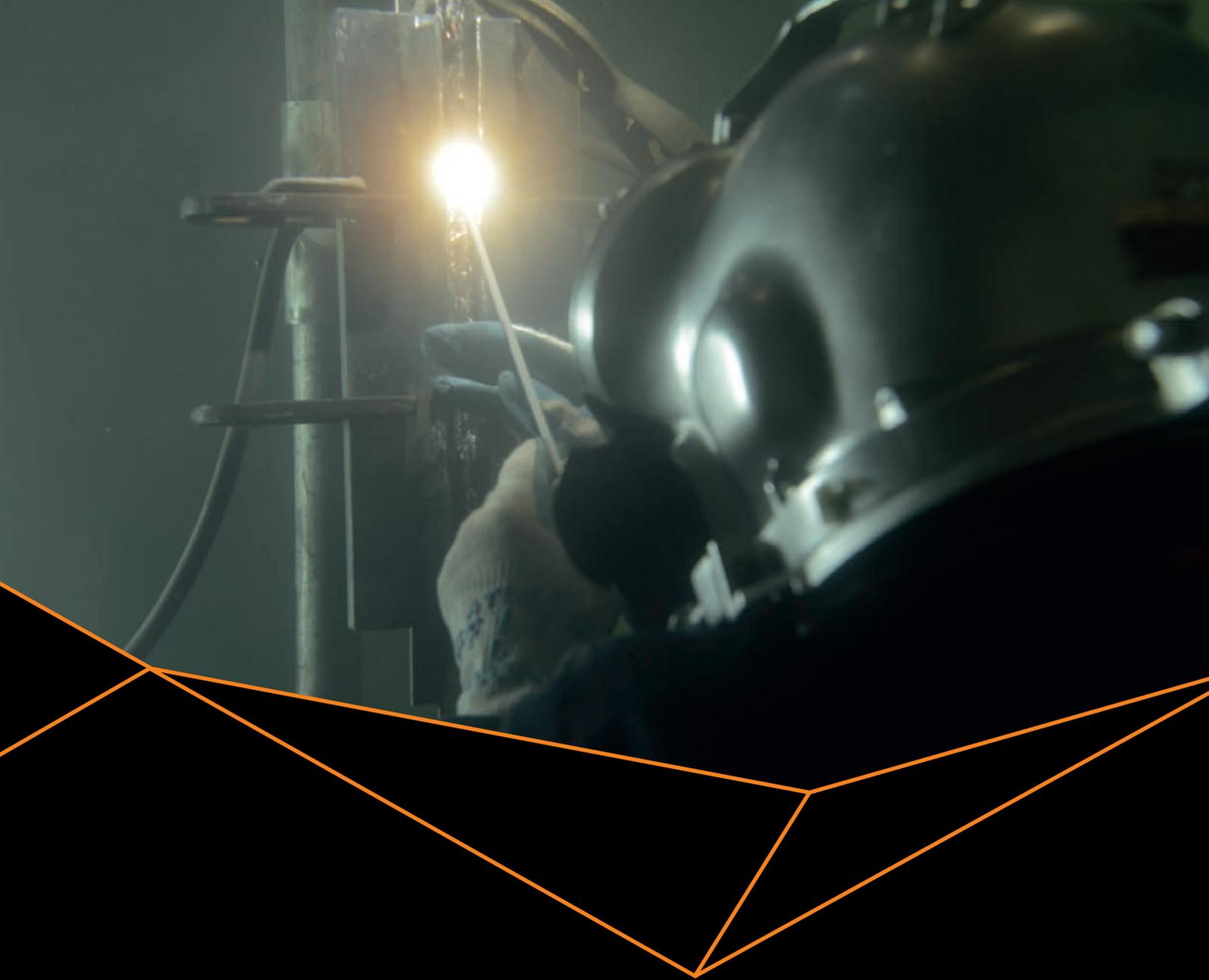
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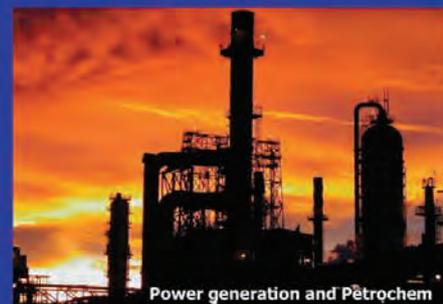


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