



Net Zero – what next?

The solutions are in reach to meet Net Zero if we work together and engineer lasting solutions

A FIDIC report

/SON2021

Contents

Foreword	2
Executive summary and recommendations	3
Industy viewpoint	7
Key developments in the making of current climate targets	9
What has changed since the Millennium Development Goals? What did we learn to help us hit the next set of targets?	10
UN Sustainable Development Goals	14
The SDGs have improved links to a circular economy	
Industy viewpoint	17
Net Zero	19
Are we investing in infrastructure more sustainably?	25
Industy viewpoint	27
The next target needs to start today - resource scenarios to Net Zero	29
Linking new targets and expectations	
Industy viewpoint	33
Acknowledgments	35
About FIDIC	39
FIDIC 2020-2024 priorities	
Recent FIDIC policy documents	40
Endnotes	44

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Foreword from the President and CEO





Anthony Barry President, FIDIC



Dr Nelson Ogunshakin OBE Chief Executive Officer, FIDIC

The newly launched State of the World series is now into its fifth report in 2021. As climate change continues to rise the political agenda with the release of the latest The Intergovernmental Panel on Climate Change (IPCC) report and COP26, never before has it been so important that our sector is engaged in the political debate and is seen to be contributing to developing the way forward.

The climate challenge we face is global and significant in its potential impacts and, that is why, as part of FIDIC's activities we are not only producing a Climate Change Charter but also ensuring that FIDIC's core value of sustainability is built into all FIDIC's activity including our State of the World report series.

The previous report discussed sustainable communities and how engineers and our sector will play a vital role in how they develop. For such action to happen, it is not only vital to discuss localities, cities and regions but also drive significant improvement in the level of governance in countries, companies and organisations across the globe. We will not meet the UN Sustainable Development Goals (SDGs) and Net Zero (CO2 emissions) if we do not engage at every level from the top right down to the individual.

The SDGs and Net Zero are the latest challenges explored in this report:

- Are we doing enough?
- Is Net Zero ambitious enough?
- What is next?

Covid has shown that if we engage society, government and the private sector in unison, significant challenges can be overcome. To achieve success, the issues need to be quickly and effectively communicated, well understood, targets need to be set early, they need to adapt to changing conditions and updates such as the IPCCs *AR6 Climate Change 2021: The Physical Science Basis report*¹.

The 2030 target for the achievement of the SDGs is fast approaching and the SDGs were developed from the learnings of the Millenium Development Goals. Net Zero is developing in a similar manner, but a key question emerges, is Net Zero enough? As we will explore in this report, the development of climate goals has focused mind and opinions, but delivery remains key.

Delivery, however, is reliant on customers, clients, companies, professions and governments all working towards the same goal. If we stand still, we are not progressing, as the world will continue to evolve around us. As such, FIDIC suggests three very prominent but important actions that should be taken to move forward.

FIDIC is proud to produce this report which suggests that the Net Zero goal needs accelerating given the IPCC AR 6 report, and also that suggests a new goal for 2060 which integrates with Net Zero to ensure that we are truly sustainable.

We are not sustainable if we use all our limited resources racing to achieve a Net Zero carbon target only to discover the wider issues that have been caused as a result. It could be argued this was the issue with fossil fuels where short-term gains were placed over long-term sustainability, so it is vital we evolve our thinking targets and engage society in the discussion as soon as possible.





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2020 and 2021 will most likely be remembered for the Covid pandemic but there is also another significant trend which has been occurring. This is the general improvement in the recognition, perception and importance of addressing UNDP's SDG 13 on climate change, its associated transition to reducing CO2 emissions as well as UNDP's SDG 12 on sustainable consumption and production

COP26 will see global leaders, industries and individuals meet, to once again discuss this important issue and to ask important questions such as are we doing enough?

Following the latest August 2021 IPCC AR 6 report, it is becoming increasingly clear that not only is meeting the SDGs important, but efforts may need to go significantly beyond the 2030 targets. This is where the understanding of Net Zero and commitments to Net Zero emissions are increasingly important.

FIDIC adopts the Net Zero definitions provided by IPCC:

Net Zero CO2 emissions – Net Zero carbon dioxide (CO2) emissions are achieved when anthropogenic CO2 emissions are balanced globally by anthropogenic CO2 removals over a specified period. Net Zero CO2 emissions are also referred to as carbon neutrality.

In most instances the measurement of the change in carbon emissions mentioned above is baselined against 1990 levels. Looking at country commitments to Net Zero there is a positive trend with 136 countries², with a combined population of over five billion individuals, setting target dates. Of these, however, only 26 (approximately 19%) have plans in place to meet these target dates.

Looking at companies, between July 2019 and June 2020, over 230 companies committed to reach net-zero emissions as part of the Business Ambition for 1.5° C campaign, an urgent call-to-action for companies to set emissions reduction targets in line with a 1.5° C future.³

There are, however, multiple schemes that track companies' commitments and so it is hard to get a definitive number. For example, the Energy Climate Intelligence Unit⁴ lists 419 companies which have made Net Zero commitments of which 212 (approximately 50%) have published plans to meet these targets.

Most companies are targeting a 2050 date but there is a far greater variation than the country targets which ranged from 2030 up to 2060 as opposed to the companies which ranged from 2005 to 2075 with 52 companies having targets prior to 2020 and so should already be operating at their Net Zero target.

But is Net Zero enough and how difficult will it be to achieve? This report demonstrates using various scenarios that meeting Net Zero will by no means be an easy challenge. It does, however, seem that some countries and companies are very aware of the prospect that 2050 will be too late.

Net Zero is based on 1990 levels which is when the concept first originated, politically became significant in 2000 - so that was effectively a 60-year goal, 50-year political run - it's now 2021 and we are aiming for 2050 but we have no concept of what follows.





Recommendation 1 - Net Zero: The aim of reaching Net Zero should be brought forward to 2045 instead of 2050. This would not only provide impetus but would significantly accelerate progress to minimize the problems highlighted as part of the latest IPPC AR 6 report.



Recommendation 2 – Global readiness is a key measure which will indicate the likelihood of success of achieving Net Zero by 2020. There are clear steps on the road to Net Zero from signing up to the Net Zero target, developing a national government policy, legislating targets and systems to achieve the targets, carbon trading and offset schemes, effective governance, investment and the actual emission reductions. It is a clear learning from implementation of the MDGs and SDGs that in relation to Net Zero, we need those countries and industries with the capability and/or the opportunity to reduce emissions more quickly than others to do so as quickly as possible.

The rational for this is that there are a number of countries and companies that can develop faster than the current 2050 target and where those are able to do so they should be encouraged to take such action, but also because FIDIC is suggesting the creation of a 2060 target which goes beyond simply considering carbon. This it is envisaged will work with Net Zero and so aid its delivery.

In the focus to achieve Net Zero there has been much research on the circular economy and sustainable infrastructure, all of which are beginning to drive us in the right direction. But as with the SDG goals, carbon reduction alone cannot be the only target, hence sub- goals that sit below it will be required to further drive and guide this transition.

A headline target is, however, essential as this is what engages the public and society. This therefore needs to be achieved, to ensure society actively engages in the journey. As the way we live changes expectations will have to change but expectations take time to change.

There is then the additional question of, what next? The SDGs are due to be achieved by 2030, Net Zero is widely considered to be achieved by 2050 but what is beyond this? How do we manage the transition between various targets and how do we ensure we maintain progress and further improve this globally?

To set such targets takes time and engagement across a variety of stakeholders. As such, FIDIC proposes that conversations around the next target need to begin sooner rather than later. Having considered the Net Zero carbon target and the increasing efforts to integrate circular economy thinking into activities we believe a good starting point for these conversations would be based on a net resource target.







Recommendation 3 – It is time for the world to get behind a new and ambitious target that works with the Net Zero target to create a complimentary 2060 Net Resource target. Resources can be considered to be biotic or non-biotic; this includes everything from rare minerals (non-living) to the fish (living) and food stocks we consume. Managing our natural resources is moving towards a truly circular economy and this focus needs to not only happen as part of Net Zero targets but will have to be sustainable beyond.

Net Resource - Resources should be used and continue to be used in a way where the use, creation and/or need of materials, products and services are designed to eliminate waste in the first place and generate minimal detrimental effect on the need for additional resources in the future, thereby, ensuring sustainability for future generations with no overall waste due to the underutilisation.

The truth is if we are to be truly sustainable, we need to have targets that interact with each other, that are informed well in advance, can be flexible and engage all stakeholders from policy makers, investors and the industry all the way to the individual household members.



Creating overlapping and connected targets



Recommendation 4 – industry leading the way: The engineering sector will be instrumental in developing the technology, industry and infrastructure of the future and , achieving and exceeding the Net Zero and net resource targets above. It will, however, also need to look at its own impact to meet such targets.

Infrastructure is important to these goals not just because it requires large amounts of resources and carbon to build, but because it plays a critical role in determining economic and social activity/behaviours, which will need to change to achieve these goals.

This report is aligned with the recent launch of FIDIC's climate change charter and will continue to be further developed in line with the UN SDG goals, changes in future data and science, to ensure that industry not only commits, but can develop and implement the tools required to meet such targets.

This report is a call to the consulting engineering sector to engage with such ambitions.





Industry viewpoint





Denise Bower Executive Director, External Engagement Mott MacDonald

Engineers are at the heart of the net-zero challenge, which requires industry-wide collaboration.

Climate change is one of humanity's most urgent challenges. It poses immense risks but also enormous opportunities to address social inequalities, redress environmental damage and build back biodiversity, and stimulate new economic activity through a green industrial revolution. In short, addressing climate change offers the opportunity to create a better world.

To succeed, we must transform our social and economic infrastructure – our built environment, industry, services and natural environment. How we create, operate and manage these systems holds the key to cutting emissions and building resilience to the physical impacts of climate change.

We, professional engineers, have a critical role to play in addressing this challenge. Concrete alone is responsible for 7% of global carbon emissions and the infrastructure we create influences operational emissions from sectors such as transport and energy which together are responsible for over 70% of global emissions.

Industry viewpoint



To achieve net-zero, total emissions must be cut to as close as possible to zero with any residual emissions removed from the atmosphere. Infrastructure professionals own the lion's share of that challenge.

The COP26 international climate summit will be key in developing national route-maps to net-zero carbon. With limited time to act, it is vital that long-term emissions reduction commitments are translated into short-term actions, and that infrastructure owners, operators, investors, and the whole of the infrastructure value chain, develop and implement their own action plans.

It will be vital to employ innovative new digital solutions to identify and chase out carbon from new and existing assets and operations, influence user behaviour to reduce demand, and adopt circular business models which emphasise the reuse of materials and elimination of waste. At the same time, we must ensure the built and natural environments continue to work for the good of society by adapting them to withstand the impacts of a changing climate.

We need to work together. Through collaboration between governments, businesses, cities and communities, we can and must take action now to help secure global net-zero by 2050. It involves identifying, copying and upscaling best practice within and between sectors, and prioritising where innovation and investment should be focused for the greatest and fastest carbon reductions.

Organisations must recognise their connections and interdependencies. If organisations fail to collaborate, those interdependencies can block progress. When they collaborate, progress is enabled.

Achieving net-zero is a huge challenge in itself. But many are concerned that it is not enough, and that offsets provide a way out of meaningful emissions reduction. If done properly by everyone, net-zero should be enough to avert catastrophic climate change. For Mott MacDonald, this means focusing on deep emissions reductions in line with science-based targets, and removing from the atmosphere all residual emissions. But we are on a knife edge and not all countries, organisations and individuals are fully committed to a genuine net-zero.

That is why going net-negative should be considered seriously. Because unstoppable, progressive climate change will ultimately make our planet unlivable – and bring untold social and economic disruption and hardship on the way.

Net negative would require us to develop and implement at scale technologies that don't yet exist. Engineers can describe what is required and are capable of designing, building and operating it – if society is willing to pay for it. Potential solutions include bioenergy linked with carbon capture and underground storage, and direct air capture and underground storage. They are fascinating engineering challenges – but the financial and social cost could be immense, and it would be better for everyone if we can avoid relying on them.

Achieving net-zero and anything beyond it represents a huge challenge – but it is also an unprecedented opportunity to deliver positive benefits for people and the natural environment. Engineers are uniquely placed to drive the change. I am proud to be part of our profession at this historic and exciting time.







SOW



2020 and 2021 will most likely be remembered for the Covid crisis but there is also another significant trend which has been occurring. This is the general improvement in the recognition, perception and importance of addressing UNDP's SDG 13 climate change, its associated transition to reducing CO2 emissions as well as UNDP's SDG 12, sustainable consumption and production.

COP26 will see global leaders, industries and individuals meet to once again discuss this important issue and to ask important questions such as, are we doing enough? To understand this, it is important to understand the journey and the recognition of climate change up to current commitments.

On the following page is an outline of some key points that help to explain the evolution to current climate thinking and the need for further action.

The concerns around climate change continue to evolve and as can be seen from the most recent activity, there has been a further shift from the SDGs towards Net Zero. To understand this, we look at the Millennium Development Goals, the Sustainable Development Goals and ask what can we learn so that Net Zero is successful and crucially is Net Zero enough?

What has changed since the Millennium Development Goals? What did we learn to help us hit the next set of targets?

In September 2000, the UN set eight Millennium Development Goals²¹ and all 191 UN member states agreed to try to achieve these by the year 2015. The Eight Millennium Development Goals were:

- To eradicate extreme poverty and hunger.
- To achieve universal primary education.
- To promote gender equality and empower women.
- To reduce child mortality.
- To improve maternal health.
- To combat HIV/AIDS, malaria, and other diseases.
- To ensure environmental sustainability.
- To develop a global partnership for development.

As can be seen from the above, these were not unambitious goals and countries took action to meet their commitments under them. The Millennium Development Goals Report produced in 2015²² stated that:

"The MDGs helped to lift more than one billion people out of extreme poverty, to make inroads against hunger, to enable more girls to attend school than ever before and to protect our planet. They generated new and innovative partnerships, galvanized public opinion and showed the immense value of setting ambitious goals."

The report found that the goals had helped to drive behaviours and co-operation in way not seen before with political will and consistent long-term planning and action important to achieving real change.

An area that was specifically highlighted was the need for better data. The lessons they discuss include:

- The monitoring of the MDGs taught us that data is an indispensable element of the development agenda
- Better data is needed for the post-2015 development agenda
- Strong political commitment and significantly increased resources will be needed to meet the data demand for the new development agenda.









As can be seen from the MDG: 2015 Progress Chart (figure 8) produced by the UN a reasonable number of the goals and targets set were met with excellent progress. This to some extent explains why there was still political will to develop the broader more comprehensive Sustainable Development Goals that are currently in place.

Observations on performance

The first observation is the time it took for governments, industries, businesses and communities to come to understand the MDGs, to engage meaningfully, to develop plans and take action to achieve them. Despite the advances in technology and communication, political, corporate and societal will to change takes significant time, commitment and patience.

The second observation is the degree of variation in performance across the goals and the regions. Whilst it is unlikely that regions were going to be consistent across all goals or that one goal would be easy to achieve across all regions it does suggest there is a need for better engagement, advocacy and sharing of knowledge, data, solutions and information. This would help to achieve a more equal and equitable performance across areas by allowing those that are underperforming to learn from those that are excelling in a particular area.

A significant number are also shown as having made good progress, which whilst encouraging suggest that given the data and monitoring improvements should be in place going forward. Such measures are in place for the Sustainable Development Goals, which hopefully will mean that before the final deadline that they could assist in converting under-performers into ones that have exceed expectations.

Finally, there are the fair and poor progress categories in some regions which are likely to be institutional, structural and infrastructure issues that make these goals relatively more difficult to achieve.

Millennium Development Goals: 2015 Progress Chart



Africa		Asia					Latin America	-		
Northern	Sub-Saharan	Eastern	South-Eastern	Southern	Western	Oceania	and the Caribbean	Central Asia		
GOAL 1 Eradicate extreme poverty and hunger										
low	very high	low	moderate	high	low	-	low	low		
poverty	poverty	poverty	poverty	poverty	poverty		poverty	poverty		
large	very large	moderate	large	large	large	very large	moderate	small		
deficit	deficit	deficit	deficit	deficit	deficit	deficit	deficit	deficit		
low	high	moderate	moderate	high	moderate	moderate	moderate	moderate		
hunger	hunger	hunger	hunger	hunger	hunger	hunger	hunger	hunger		
GOAL 2 Achieve universal primary education										
high	moderate	high	high	high	high	high	high	high		
enrolment	enrolment	enrolment	enrolment	enrolment	enrolment	enrolment	enrolment	enrolment		
GOAL 3 Promote gender equality and empower women										
close to parity	close to parity	parity	parity	parity	close to parity	close to parity	parity	parity		
low	medium	high	medium	low	low	medium	high	high		
share	share	share	share	share	share	share	share	share		
moderate representation	moderate representation	moderate representation	low representation	low representation	low representation	very low representation	moderate representation	low representation		
GOAL 4 Reduce child mortality										
low	high	low	low	moderate	low	moderate	low	low		
mortality	mortality	mortality	mortality	mortality	mortality	mortality	mortality	mortality		
GOAL 5 Improve maternal health										
low	high	low	moderate	moderate	low	moderate	low	low		
mortality	mortality	mortality	mortality	mortality	mortality	mortality	mortality	mortality		
moderate	low	high	moderate	moderate	moderate	low	high	moderate		
access	access	access	access	access	access	access	access	access		
V/AIDS, ma	alaria and o	ther diseases	5							
low	high	low	low	low	low	low	low	low		
incidence	incidence	incidence	incidence	incidence	incidence	incidence	incidence	incidence		
low	high	low	moderate	moderate	low	moderate	low	moderate		
mortality	mortality	mortality	mortality	mortality	mortality	mortality	mortality	mortality		
ironmental	sustainabilit	у								
high	low	high	high	high	high	low	high	moderate		
coverage	coverage	coverage	coverage	coverage	coverage	coverage	coverage	coverage		
moderate	very low	moderate	low	very low	high	very low	moderate	high		
coverage	coverage	coverage	coverage	coverage	coverage	coverage	coverage	coverage		
low	very high	moderate	moderate	moderate	moderate	moderate	moderate	-		
proportion of	proportion of	proportion of	proportion of	proportion of	proportion of	proportion of	proportion of			
slum-dwellers	slum-dwellers	slum-dwellers	slum-dwellers	slum-dwellers	slum-dwellers	slum-dwellers	slum-dwellers			
GOAL 8 Develop a global partnership for development										
moderate	low	high	moderate	low	high	low	high	high		
usage	usage	usage	usage	usage	usage	usage	usage	usage		
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The progress chart operates on two levels. The text in each box indicates the present level of development. The colours show progress made towards the target according to the legend below:

Target met or excellent progress.

Good progress.

Poor progress or deterioration.
 Missing or insufficient data.

Fair progress.

For the regional groupings and country data, see *mdgs.un.org*. Country experiences in each region may differ significantly from the regional average. Due to new data and revised methodologies, this Progress Chart is not comparable with previous versions.

Sources: United Nations, based on data and estimates provided by: Food and Agriculture Organization of the United Nations; Inter-Parliamentary Union; International Labour Organization; International Telecommunication Union; UNAIDS; UNESCO; UN-Habitat; UNICEF; UN Population Division; World Bank; World Health Organization - based on statistics available as of June 2015.

Compiled by the Statistics Division, Department of Economic and Social Affairs, United Nations.

Source: Chart/graphic from UN²³





UN Sustainable Development Goals

Having discussed the now expired Millennium Development Goals, lets introduce the Sustainable Development Goals. The development of the current Sustainable Development Goals is an evolution and improvement on the Millennium Development Goals following their expiration in 2015.

To continue to move forward and to ensure the Sustainable Development Goals reach their full potential, we need to build into these goals some of the lessons learn from the Millennium Development Goals. This includes targeting various challenges, the increased transparency and data linked to the goals and a greater emphasis on the website and communication and engagement around the new goals.

The Sustainable Development Goals (of which there are 17 compares to the eight Millennium Development Goals) are a call to action.

According to the United Nations²⁴, the SDGs are the blueprint to achieve a better and more sustainable future for all. They address the global challenges we face, including those related to poverty, inequality, climate change, environmental degradation, peace and justice.

The 17 goals are all interconnected, and to leave no one behind, it is important that we achieve them all by 2030. In September 2015, the UN general assembly adopted the 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals. Building on the principle of "leaving no one behind", the new agenda emphasises a holistic approach to achieving sustainable development for all.



The 17 sustainable development goals (SDGs) to transform our world:

Source: United Nations²⁵ (Annotated by FIDIC)

Each of the above goals have several sub-targets and within them nations have made commitments which will be backed by national policy measures which aim to meet these goals.

As can be seen from the annotation above to the SDGs, FIDIC sees a significant degree of interaction with its own objectives and the activities of its Members, consulting engineering firms and their services and projects. To deliver a sustainable world to future generations will require engineers to lead with integrity in all aspects of the SDGs.





FIDIC, the industry and the SDGs

One of the important developments from the Millennium Development Goals is that the UN set up a website where these goals were tracked, data is transparent and available to download. It helps to facilitate a higher level of knowledge sharing and accountability, lessons learnt from the Millennium Development Goals.

If we consider such improvements in light of one of the SDGs, for example, looking at the first target to by 2030 achieve universal and equitable access to safe and affordable drinking water for all, there has been improvement over the period but unfortunately data is still limited to ending in 2015. Some country-level reporting is more current, but as we are fast approaching SDG deadline of 2030, improved consolidated measurement and reporting is required.

It is important to maintain progress and if possible, challenge industry to get up to date data so that we can track progress closer to real time. Only then can we target interventions and engage the correct parts of the supply chain to instigate solutions to help achieve these targets.

This leads us to discussion around the latest challenge which will be around beyond 2030 and that is Net Zero.





The SDGs have improved links to a circular economy

Goal 12 *"responsible consumption and production²⁶"* of the SDGs has links to a circular economy, reducing waste and managing the use of resources etc in a more sustainable way, which is important to address the aim to reach towards net resources. This SDG has the following targets:

- 12.1 Implement the ten-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries.
- 12.2 By 2030, achieve the sustainable management and efficient use of natural resources
- 12.3 By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses.
- 12.4 By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimize their adverse impacts on human health and the environment.
- 12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse.
- 12.6 Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle
- 12.7 Promote public procurement practices that are sustainable, in accordance with national policies and priorities.
- 12.8 By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature.
- 12.a Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production.
- 12.b Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products.
- 12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing
 market distortions, in accordance with national circumstances, including by restructuring taxation and
 phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking
 fully into account the specific needs and conditions of developing countries and minimising the possible
 adverse impacts on their development in a manner that protects the poor and the affected communities.

There is very significant evidence that waste in our oceans and waterways are enabling harmful substances to enter the food chain at a rate and concentrations which may be harmful to animal and human health for generations to come.

This is where concepts such as the circular economy and resource efficiency are very important and are increasingly being explored in a great degree of detail by various stakeholders. For example, by the Sustainable Infrastructure Partnership, which can refer to SDG17. This will, however, become increasingly important and will affect significant activities in day-to-day life as the globe move beyond the SDGs and towards Net Zero.





Industry viewpoint





José Aparicio Managing Director & President Siemens Energy Mexico, Central America and Caribbean

What is Net zero? What is being done? What are some of the challenges already identified along the way?

All elements of society must work together to make sure we achieve and continue the decarbonization and sustainability path after 2050. This is the core of the analysis presented in the fifth report, The State of the World series, published by FIDIC. The purpose is clear: Net zero conversations and targets must be continuously driven in order to increase awareness, commitment and technical develops to achieve these long-term sustainable goals.

This is not an easy task, and the analysis shows how the different parts of the global economy must work together, act fast and co-create complimentary measures to the already existing ones. It's a fact that the sense of urgency is increasing, and we are seeing a higher attention to these topics. We need to reflect if these actions are enough to sustain our commitments beyond 2050.

Industry viewpoint



As a member of Siemens Energy, I am proud that my organization is acting accordingly and implementing our own decarbonization strategy with a clear target to be climate-neutral in our own operation by 2030, and to cover 100% of our electricity consumption with green electricity by 2023. As part of our commitments, and in adhesion to the 17 UN Sustainable Development Goals, we are focused on five SDGs:

- Gender equality
- Affordable and Clean Energy
- Decent work and economic growth
- Industry, Innovation and Infrastructure
- Climate action

Initiatives and programs are driven across regions to make sure we close gaps and achieve our goals over the time period we have set for our company.

Now, coming back to the fifth report and its findings, from my perspective it is important to emphasize the following three points:

- Constant data analysis and implementation of actions, more than ever data is available and
 accessible to most people. The foundation of the report comes from excellent resources which are
 tracking the UN Sustainable Goal and Net zero targets. It is up to each person to familiarize themselves
 with the information, create and demand even more up-to-date data transparency for analysis and
 generate ideas that can be translated into actions to improve our status-quo.
- Innovation is closely related to the previous statement and is key to develop new products, solutions and services to navigate this transition and even facilitate the mitigation of the climate challenges. Of course, commitment and investment are needed to gain maturity and market readiness. It is important to keep an evolutionary approach for a gradual and affordable transition.
- Cross-sector collaboration means that all sectors of society have a role to play and must engage in the same direction. It is not solely the work of private or public sectors, all members of society must actively participate in the discussion, education, defining priorities and actively commit to actions. We globally need to do more!

Our purpose in Siemens Energy is to energize societies and contribute to achieve the Net Zero goals. The invitation goes to all of you to energize them together!







Following the latest IPCC AR 6 report, it is becoming increasingly clear that not only is meeting the SDGs important, but efforts may need to go significantly beyond the 2030 targets. This is where the commitments to Net Zero are increasingly important.

So, what is Net Zero? The IPCC²⁷ defines net-zero as:

Net Zero CO2 emissions - Net Zero carbon dioxide (CO2) emissions are achieved when anthropogeni c CO2 emissions are balanced globally by anthropogenic CO2 removals over a specified period. Net zero CO2 emissions are also referred to as carbon neutrality.

Net Zero emissions - Net Zero emissions are achieved when anthropogenic emissions of greenhouse gases to the atmosphere are balanced by anthropogenic removals over a specified period. Where multiple greenhouse gases are involved, the quantification of Net Zero emissions depends on the climate metric chosen to compare emissions of different gases (such as global warming potential, global temperature change potential, and others, as well as the chosen time horizon).

Understanding the term Net Zero is important, For the purposes of this report we will adopt the IPCC definitions above.

Looking at country commitments to Net Zero there is a positive trend with 137 countries, with a combined population of over five billion individuals setting target dates. Of these, however, only 27 (approximately 20%) have plans in place to meet these target dates.

Country commitments to Net Zero



Powered by Bing © Australian Bureau of Statistics, GeoNames, Microsoft, Navinfo, TomTom, Wikipedia

Source: Energy and Climate Intelligence Unit²⁸





Looking at companies, between July 2019 and June 2020, over 230 companies committed to reach net-zero emissions as part of the Business Ambition for 1.5°C campaign, an urgent call-to-action for companies to set emissions reduction targets in line with a 1.5°C future.²⁹

There are, however, multiple schemes that track companies' commitments and so it is hard to get a definitive number. For example, the Energy Climate Intelligence Unit lists 419 companies which have made Net Zero commitments of which 212 (approximately 50%) have published plans to meet these targets.

As can be seen from the chart below, most companies are targeting a 2050 date but there is a far greater variation than the country targets which ranged from 2030 up to 2060 as opposed to the companies which ranged from 2005 to 2075 with 52 companies having targets prior to 2020 and so should already be operating at their Net Zero target.

What dates are companies committing to with regards to Net Zero



Source: Energy and Climate Intelligence Unit³⁰

To put the scale of the above challenge in context, below, we are providing three proposed scenarios. Each of these start with an index number of 100 starting in 2020 and assumed a percentage improvement (reduction) based on different speeds and types of change.

These improvements are overall rate and so could be constituted of reduction in current carbon use. They do not, however, consider the effect of including nature-based solutions, the development of eco-projects or an increase in sustainable infrastructure developments that will result in improvements of carbon sink and carbon capture and will subsequently speed up the transition to Net Zero emissions.

Additionally, as will be seen from the scenarios below, only some scenarios factor in lags (and delays) in improvements which could for example be as a result the time taken to go from engagement, commitment, planning to implementation to operation. This unlike the nature-based solutions mentioned above, will act in the opposite direction.





Global readiness is a key measure which will indicate the likelihood of success of achieving Net Zero by 2020. There are clear steps on the road to Net Zero from signing up to the Net Zero target, developing a national government policy, legislating targets and systems to achieve the targets, carbon trading and offset schemes, effective governance, investment and the actual emission reductions. It is a clear learning from implementation of the MDGs and SDGs that in relation to Net Zero, we need those countries and industries with the capability and/or the opportunity to reduce emissions more quickly than others to do so as quickly as possible.

The first scenario assumes a flat rate of improvement each year towards Net Zero of 5% in the low range, 10% in the mid-range and 20% in the high range. As can be seen from the chart below there are significant difference in pace between the low and high scenario as the compounding effect of year on year takes place.

It should also be noted that rather than being linear, these curves are more likely to reflect quick wins and larger gains up until a point where gains slow as incremental increases are more difficult to achieve as part of the remaining smaller emission levels.

Under these assumptions, going from status quo to Net Zero emissions by 2050 would not occur in the low and mid reduction scenarios and would be achieved in 2044 under the high (20%) reduction scenario (index level of one as emissions would in theory never reach zero).



Scenario 1: Consistent annual improvement rates to Net Zero

If we look at a second scenario where improvements each year increase incrementally up to a fixed point, the profiles are quite different. Under this scenario the low range starts at 1% and improves each year up to 5% where annual improvements then remain stable at this level until 2050. For the mid-range it raises to a maximum of 10% and for the high-range 20%.

Under these assumptions, no scenario results in meeting Net Zero by 2050 although the high range outcome is very close. What this suggests is that small incremental improvements over time will not be sufficient unless two conditions are met.

The first is that these incremental improvements need to be growing at a greater rate than simply an additional 1% per year, so improvements need to start now and need to occur at a rate where the commitment to Net Zero is significant.

The second is that if only small improvements do occur annually, these would need to continue to meet at least 20% reductions year on year by 2039 to even have a chance of getting close to a 2050 Net Zero target.





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Having considered a flat rate of annual reduction and an improving rate with a cap, the third scenario we consider is one of a flat rate which in the low scenario last ten years (5%, 10%, 15%, 20%) before stepping up to a higher level and a 5-year period in the mid-range (5%, 10%, 15%, 20%, 25%, 30%, 35%) and high range (10%, 15%, 20%, 25%, 30%, 35%, 40%) scenarios but with greater levels of annual reduction.

This is intended to reflect that political and corporate commitment, community engagement, technological change, periods of capital expenditure, fixed investments, contract periods, refurbishments etc will not occur necessarily annually and so some changes will be stepped in approach.

As can be seen from the chart below both the mid (2049) and high (2044) range scenarios meet Net Zero. The low range, however, whilst not meeting Net Zero does still come close to it by 2050 than the previous scenarios. Suggesting that five- or ten-year periods where annual improvements set at a certain improvement as a policy for countries and companies could meet the 2050 date.





The big question, however, remains is 2050 early enough? Some countries such as Finland are aiming to meet this target as soon as 2035 and whilst countries will start from different points of development and emissions the simple scenarios above demonstrate the scale of the challenge ahead.

Whilst the SDGs currently have a goal for responsible consumption and production, many of the targets are linked to resource use per capita and the goals are set in consideration of what can be achieved by 2030. As has been shown from the above Net Zero not only is a significantly more challenging target to meet but increasingly meeting goals will involve trade-offs with resource requirements to develop the infrastructure, equipment and building to meet the goal of Net Zero emissions.

Net Zero does not, however, account for resources (which are finite unless technology can recreate them) and assuming we meet Net Zero at a point where global warming stops, we need to be looking at how to maintain and further improve our global achievement, so we become net positive. Net Zero is based on 1990 levels which is when the concept first originated and politically became significant in 2000 - so that was effectively a 60-year goal, 50-year political run - it's now 2021 and we are aiming for 2050 but we have no concept of what follows.

The current lack of a recognition of the resources and thus the circular economy challenge within the Net Zero commitments is therefore a concern.

Carbon reduction and the development of various goals based on 1990 levels (broadly when the concept was accepted politically) became more significant publicly over time. That was effectively a 50 – 60-year goal and we are now 30 years into its implementation. As such, we should be thinking not only about Net Zero for carbon but Net Zero for resources where supply is finite, and action is necessary especially if getting to Net Zero consumes such resources to be delivered.





Are we investing in infrastructure more sustainably?

As was revealed in the first State of the World report in 2021³¹, there is a genuine question as to if we are investing more sustainably. To recap the headline findings:

Using OECD data on infrastructure investment and maintenance (The chart tracks the investment/maintenance spending ratio over time of countries³² where consistent data points over time were available and removing seven outliers where the ratio was significantly above 20 and not representative within the dataset).

As can be seen below, the report plotted the average investment and maintenance ratio and it revealed it has fallen from investment being approximately three times the level of maintenance to it being just over two times the level.

It is important to consider that the data point in more recent times that are not included could if at a higher ratio improve results. This does not, however, mean that such an overall trend is not relevant because if you consider the period excluding the last four years where there are some missing data points in 11 countries (up to four years most missing one or two) that the trend is still lower than at the start of the period.

The charts provided (such as the one below) demonstrated the potential impact of economic cycles and conditions with the ratio experiencing a rise with a subsequent fall in the period around 2001, 2009 and 2015. The 2001 period was around the emergence of the technology bubble, the 2009 period the financial crisis and the 2015 period a time of increasing global uncertainty with pressures on international trade.



Source Data from OECD33





To put the scale of the above challenge in context, below, we have provided three proposed scenarios. Each of these start with an index number of 100 starting in 2020 and assumed a percentage improvement (reduction) based on different speeds and types of change.

The important thing to consider is what can we learn from the above? Below this report provides some observations:

- 1. Maintenance spending as a proportion of the investment/maintenance spending has increased
- 2. Investment spending as part of the investment/maintenance spending has decreased
- 3. Both have decreased and increased but to a differing extent

The above, however, is even more important when you consider that trend going forward. By 2030, the time at which the SDGs and 'sustainable development' is due to be a priority the ratio would only be 1.7, and if that is pushed out to Net Zero at 2050 the ratio would be 1.

This we suggested has two potential implications. The first is that investment profiles, despite all the emphasis on using investment to grow out of recessions, compared to maintenance is relatively stable and linked to maintenance need. This suggests we have not seen progress towards the earlier discussed infrastructure needs gap.

The second is that when you consider 'whole life costs and the aim of making infrastructure more sustainable, there does not appear to be evidence that maintenance costs are reducing because of infrastructure expenditure and that they are in fact increasing.

Whilst this may not seem positive it can explain the issue the globe is facing. The lack of infrastructure investment in a sustainable manner is resulting in maintenance costs being higher as a ratio between the two than otherwise would be the case. Globally we are not meeting the infrastructure investment need. Weare still prioritising short term solutions and fixes over long term sustainable decisions.

One possible explanation for the changes in the Investment/Maintenance ratio may be that infrastructure in the developed world (lower investment risk) is maturing and in the developing world (higher investment risk) is not able to attract new investment.

This is something that needs to be addressed going forward and to do this the SDGs, sustainable infrastructure and the progress towards a circular economy and model of growth therefore needs to be emphasised more and communicated in a way where it resonates with wider society. We will not achieve the SDGs, Net Zero or any other target if we do not carry and bring wider society along on this journey.

Industry viewpoint





Jeshika Ramchund Lead Engineer – Developments Bosch projects

The concept of carbon neutrality, a state of net zero where there is a balance between the amount of greenhouse gas produced and the amount removed from the atmosphere, is well recognized and mainstreamed.

In the run-up to COP 26, there has never been more information in the public domain on climate change mitigation and adaptation, and net zero is at the heart of the change. The built environment has often been criticized for being slow to respond within decisive and timeous action to the climate crisis. Since the adoption of the then, Millennium Development Goals, and the now Sustainable Development Goals (SDG's), in the era of the net zero conversation in the wake of the Paris Agreement, the emergence of multiple global engineering voices, coupled with action is hard to ignore.

Industry viewpoint



With the Built Environment and the Construction Sector accounting for almost 38% of global carbon emissions, we are seeing an encouraging trend toward policy and legislative changes with addressing the climate crisis at the heart. Country's Nationally Determined Contributions and commitments to net zero coincides with their post-COVID pandemic recovery plans. With infrastructure development underpinning most of the recovery plans, the entire value chain of the built environment is critical to the achievement of net zero for the sector. The role of consulting engineers is particularly critical as the custodians of the type and nature of infrastructure solutions that are delivered.

From industrial to agricultural, commercial to residential and social to green open spaces, engineers literally shape the world. Given the long planning and development horizons for each infrastructure type, each stage of its lifecycle lends itself to drive the net zero ambition starting with the planning and design, construction, and operations for the life of the asset. The post-net zero world is one where the focus shifts from driving down embodied carbon to accelerating the shift to a circular economy, underpinned by resilience and adaptation matched by comparable levels of mitigation. The engineering industry has always subscribed to sustainable development principles, however the unintended consequences of not paying as much attention to the climate change aspects of the previous technological and industrialisation booms has seen a collection of policies and strategies that remain unenforced and unactioned in much of the infrastructure development we have seen over the years. Engineers offer the unique differentiator to other stakeholders in the infrastructure value chain by being the connector. This places engineers at the cold face of policy and legislation implementation on behalf of clients/project owners, establishing the basis for planning, undertaking design, on the execution front with developers and implementors and at the delivery front with supplies and contractors.

Whilst the SDG's, the climate crisis and net zero has always been seen as a highly political agenda, the mainstreaming of climate change conversations and the visible and tangible changes to the world around us, amplified by frequent extreme weather events and the consequent loss of lives as one example, the science is undeniable and the profession has prepared itself to respond accordingly.

From energy generation to food production, water security to sustainable sanitation, low carbon alternative materials, nature-based solutions to innovative heating and cooling solutions, the problem-solving expertise of engineers has never been more critical. In the infrastructure development value-chain, going beyond net zero is more than policy creation, and raising finance but also to sufficiently capacitating the engineering sector to rethink current infrastructure and to deliver tomorrow's net zero infrastructure. The scale and range of capacity building initiatives required to support the experienced engineers currently practicing in the sector and for the future leaders who enter the profession each year, is a unique opportunity afforded to the engineering profession, but also to the development of the climate change adaptation and mitigation body of knowledge as economies and infrastructure transitions to circularity and net-zero.

It is an incredibly exciting time to be an engineer and to be able to contribute to the solutions of developing infrastructure that adapts and responds to the needs of a transitioning future. Undoubtedly, engineers are key to delivering a net zero emissions future.





The next target needs to start today resource scenarios to Net Zero

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/The next target needs to start today - resource scenarios to Net Zero



Targets are important as they set expectations. This is the rationale behind, inflation, growth, employment etc targets that are in place in various forms and countries across the globe. They provide a degree of certainty and direction as individuals, companies, policy makers etc all embed such expectations into the decisions and actions they take.

The SDGs currently benefit from a fixed targets across a variety of goals by 2030, whereas the Net Zero agenda as we explored in this report has many varying expectations across the globe. This will inevitably make meeting such a target more difficult as there is a greater degree of variation to account for.

Given the latest IPCC report it is, however, reasonable to suggest that the 2050 Net Zero targets may be too late for action to have the kind of impact we require to mitigate the effects climate change.

If mitigation requires us to bring forward the 2050 target to say 2045 that would be a significant step but will also require significant investment.

As is outlined in the World Bank *Minerals for Climate Action: The Mineral Intensity of the Clean Energy Transition* report³⁴ we need to consider:

"Taking a holistic approach toward increasing climate ambition in developed, emerging, and developing countries, as well as in producers and consumers of minerals, involves understanding and analysing the full supply chain of low-carbon technologies, from mineral extraction to the end of life of these technologies."

"However, the rapid deployment of these low-carbon technologies needed to reach a 2°C pathway, or below, will also mean that the demand for minerals needed to produce these technologies will rise."

"The clean energy transition is expected to be much more mineral intensive than fossil-fuel based electricity generation. It is important to understand the extent to which mineral demand will grow globally to supply renewable energy and storage technologies."

This was in context of a two-degree pathway which we now know needs to be exceeded and that the effects of climate change are occurring faster than anticipated. The resources that the report explored included aluminium, chromium, cobalt, graphite, indium, iron, lead, lithium manganese, molybdenum, neodymium, nickel, silver, titanium, vanadium and zinc all of which are used in the development of wind, solar hydro, geothermal nuclear, coal, gas and CCS solutions.

Given the above, we must consider the scenarios that may result from mineral and resource use. To demonstrate, take one of the scenarios we discussed earlier which offers the closest match to achieving a 2050 target (incremental improvement by 1% a year up to 20% year on year reductions from 2039) and consider the various resources profiles that could take place because of the transition to net zero, there are three profiles. As can be seen from the chart below as carbon emissions continue to fall to Net Zero but for resources there are potentially three outcomes.

The first is that the resource continues to be used but over time technology, recycling and awareness of finite resources result in improvements which slow the decline in the stock of resources available. They do not, however, halt the decline and eventually new deposits or methods to reproduce or move to other minerals will be required. As an example, this may be the reduced use of crude oil / diesel for transport, but its uses continuing for the development of plastics, pharmaceuticals until alternatives are found.



/The next target needs to start today - resource scenarios to Net Zero



The second possibility is that resource stocks continue to deteriorate but due to shifts in technology, recycling etc they eventually bounce back and could return to previous levels, (although it must be noted that there will be resources where this is not possible). New technologies may mean that there is future use for such resources etc which are less detrimental to climate change, but the reduced use enables recovery. An example of this might be represented by the increased use of sustainable timber (mass engineered timber) but also allow for the recovery of forests and other areas as we move towards Net Zero.

Finally, there is the third scenario where resources may improve to a point that is better than the current position. This could be due to new deposits being discovered or improved extraction alongside reduced usage. Or alternatively in environmental systems it could be due to recovery of the environment and life below and above water. For example, if you consider seafood as a resource as it feeds the population, improved environmental conditions could see their condition improve beyond their current levels. Likewise, you could also see unintended consequences work in the opposite direction.

Whilst the above seems simplistic, it will be important to understand which resources are affected as we drive towards Net Zero and especially if we are required to undertake the path at an accelerated rate.



Possible resource profiles towards Net Zero

Linking new targets and expectations ...

Given the above, and the interaction of natural resources with Net Zero and the need to transition to a truly circular economy (net resource) it is not enough to simply have a Net Zero target. We already need to be considering and planning what is next.

If the past few decades and the Covid pandemic have taught us anything it is that targets and expectations take time to be recognised and integrated into everyday lives unless extra ordinary action is taken. As such, it is important that we not only move forward the Net Zero target to 2045 but also set a net resource target for 2060 which takes the consideration of raw materials and resources in a more holistic way.



/The next target needs to start today - resource scenarios to Net Zero



Creating overlapping and connected targets



In the focus to achieve Net Zero there has been much research on the effects of introducing a true circular economy and investments in sustainable infrastructure, all of which are beginning to drive us in the right direction but as we have seen with the goals for the SDGs carbon alone cannot be the only target hence the goals that sit below it.

There is already a growing body of research into meeting the challenges of a truly circular economy such as that provided by the Ellen MacArthur Foundation³⁵ and the Sustainable Infrastructure Partnership³⁶

https://ellenmacarthurfoundation.org/publications

A headline target is, however, essential as this is what engages the public and society. This therefore needs to be achieved, to ensure society actively engages in the journey. As the way we live changes expectations will have to change and expectations take time to change.

It is therefore time for the world to get behind a new and ambitious target that works with the 2045 Net Zero target to create a complimentary 2060 net resource target.

Net Resource - Resources should be used and continue to be used in a way where the use, creation and/or need of materials, products and services are designed to eliminate waste in the first place and generate minimal detrimental effect on the need for additional resources in the future. Therefore, ensuring sustainability for future generations with no overall waste due to the underutilisation.

The rationale behind making the target 2060, like the current 2050 target for Net Zero is that it takes time for countries, industries, companies and governments to consider the actions they will take to meet such a target. It also allows for adjustment as we have seen from previous data companies and countries following the IPCC report are slowly adjusting their Net Zero expectations to bring them forward in response to the climate crisis.

This cannot and will not happen, however, unless the concept and idea are in the wider market to begin with. The net resource target as proposed by this report is there to generate conversation in the sector and ask what the next significant and overriding theme should be for the challenges we face globally.

Refinement and even debate over the date for the target will obviously take place but it is important to start to set expectations and ensure we integrate the future targets achievements into our Net Zero thinking. It would be counterproductive to reach Net Zero in a way which detriments and creates other crisis like those of climate change so it is important that we are forward looking, engaged and to ensure generations to come can enjoy the economic growth, prosperity and environmental abundance aspired to in the SDGs.



/Industry viewpoint





Peter Guthrie Professor of Engineering for Sustainable Development at the University of Cambridge

What is so remarkable about this latest report from FIDIC is that it is founded on the previous State of the World Reports all of which have been authoritative and influential.

Now with Net Zero comes the greatest challenge of all. Not just because the scale of the challenge is unprecedented but because the actions by individual companies and countries bring no specific benefit to them but as a whole may avert the worst of a climate crisis that is impossible to overstate. This underpinning need for collective action taken in different ways in different parts of the world has been acknowledged in Paris some years ago and now must be implemented meaningfully with no further delay or prevarication.

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Industry viewpoint



The report is well researched and based on strong evidence. Engineering and technology must play a crucial role in the solutions on the road to net zero, whilst acknowledging that many technical advances in the past have been instrumental in causing global warming.

We as engineers and technologists now have to be a critical player in the team work needed to effect change as never before. It will not be good enough to make promises that are vague and generic; it will not be good enough to deliver gradual and modest change; it will not be good enough to wait for government policy and competitor pressure; companies and governments must now demonstrate positive action towards net zero based on evidence and feasibility. Future generations will look back at this moment in history to know whether or not we were courageous enough to do what needs to be done.

The FIDIC report is a commendable call to arms for the entire community.



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FIDIC's full partners

FIDIC partners are an important part of its presence and the effectiveness of the industry and help to ensure FIDIC can deliver services for the improvement of the industry. These partners go above and beyond to help support, promote and engage with FIDIC and we thank them for their support and continuing engagement.



Please note that whilst the partners shown are supportive of the FIDIC State of the world initiative the outputs, documents and research that are produced as part of this report are a FIDIC publication and so do not necessarily represent the views of partner organisations.

/Acknowledgments



Thanking our member association partners

Finally, but by no means least, FIDIC is a product of its member associations without which FIDIC would not exist. Whilst all member associations can be found on the FIDIC website, in this and future *State of the World* reports we have engaged with FIDIC member associations on the detail of our work and we would like to thank the following member associations for their support for our research.



About FIDIC



FIDIC, the International Federation of Consulting Engineers, is the global representative body for national associations of consulting engineers and represents over one million engineering professionals and 40,000 firms in more than 100 countries worldwide.

Founded in 1913, FIDIC is charged with promoting and implementing the consulting engineering industry's strategic goals on behalf of its Member Associations and to disseminate information and resources of interest to its members. Today, FIDIC membership covers over 100 countries of the world.

FIDIC, in the furtherance of its goals, publishes international standard forms of contracts for works and for clients, consultants, sub-consultants, joint ventures and representatives, together with related materials such as standard pre-qualification forms.

FIDIC also publishes business practice documents such as policy statements, position papers, guidelines, training manuals and training resource kits in the areas of management systems (quality management, risk management, business integrity management, environment management, sustainability) and business processes (consultant selection, quality-based selection, tendering, procurement, insurance, liability, technology transfer, capacity building).

FIDIC organises the annual FIDIC International Infrastructure Conference and an extensive programme of seminars, capacity building workshops and training courses.

FIDIC 2020-2024 priorities

Lead the consulting and engineering industry visibly and effectively:

- Being the industry's credible global voice
- Providing the nexus for all stakeholders
- Facilitating improvement and growth in business
- Addressing global challenges

All of the above is for the benefit of society, FIDIC members and their member firms.



Recent FIDIC policy documents





Building sustainable communities in a post-Covid world - State of the World 2020-2021

Do we need cities? Is urbanisation going to continue? Alternatively, should we be looking at the airline industry and the 'hub and spoke' model as the future for communities where most activity can happen locally in a more sustainable way via serviced offices, with only occasional visits to major hubs? The world is changing and this State of the World report asks: "are we changing quick enough to match the way communities want to live not only tomorrow, but today?".

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Tackling the global water crisis - State of the World 2020-2021

Water, it falls from the sky, runs in our rivers, fills our lakes, waters our crops and flows through our infrastructure, yet it is more than a monetary product. Yes, having explored the value of water in our second State of the World report, we explore the flip side of this equation. The environment we live in, the pollution that has historically occurred and minimising such pollution in the future, is becoming more important day by day. The SDGs make this clear, but how can industry stand up and lead the way.

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Establishing the value of water - State of the World 2020-2021

Water is vital to so many aspects of life, but investment into the infrastructure, environmental mitigations and resilience aspects of this sector for the wellbeing of humans, the environment, food production, energy etc are not sufficient.

This State of the world report therefore asks a very important question what the value of water is, is it valued incorrectly, how this will change and will this finally drive the investment required to meet the SDGs.

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Time to Tn-vest - State of the World 2020-2021

FIDIC as part of this report makes three recommendations for creating investment certainty, to create an SDG capital envelope and to reinvigorate efforts to truly shift to holistic and sustainable investment. These will help industry to move the industry forward and generate positive momentum.

It is therefore Time to Take The Trillion Task seriously, yes one T for every trillion that is estimated to be needed as a minimum to meet the SDG requirements. It is Time to Tn-vest

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FIDIC Strategic Plan 2020-2024

FIDICs has produced its new Strategic Plan for 2020-2024, it summarises FIDICs activity the results from the various appendices and the goals and approach from FIDIC going forward.

The plan includes a summary of the ten key areas identified and the five goals that FIDIC has set in these areas, including its ambition, targets and current performance.

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FIDIC Annual Report 2021

FIDIC's latest annual report was published in September 2021 and highlights the federation's work and activities during the financial year 2020-2021.

As well as a financial report, the annual report includes updates from the FIDIC president and chief executive and reports on the work of the various FIDIC committees.

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FIDIC MDB overview document

This briefing note has been written to assist both FIDIC member associations and their members in understanding the significance and opportunities available because of the partnership between Multilateral Development Banks and FIDIC.

This briefing note explores the scale of the infrastructure challenge governments, the private sector and multilateral development banks face and their role in infrastructure investment

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What the FIDIC-AfDB contracts agreement means for members

This briefing note has been written to assist both FIDIC member associations and their members in understanding the opportunities and processes that are in place as part of the agreement between FIDIC and the African Development Bank Group (AfDB).

It outlines the scale of project opportunities that are available via the AfDB and what kind of sectors and geographic regions they cover.

Importantly the document then provides details to members about how to access the AfDBs project pipeline and the processes and expectation the AfDB has for firm that wish to apply for its projects

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