



Welcome!

The program will begin soon.
You will not hear audio until we begin.





The Mother of all Grand Challenges - Returning Humanity Inside Planetary Boundaries, Restoring Balance to Gaia (Mother Earth)

Trey Shaffer, ERM
Josh Etkind, Shell

November 17, 2023



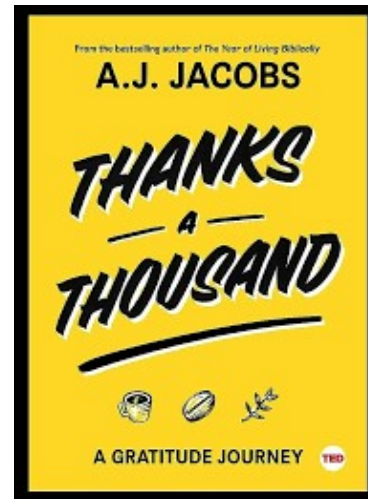


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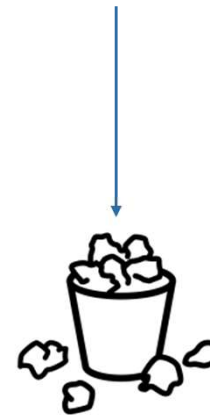
SPE
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7-Generation Thinking is a Mind Bender



Linear
Economy



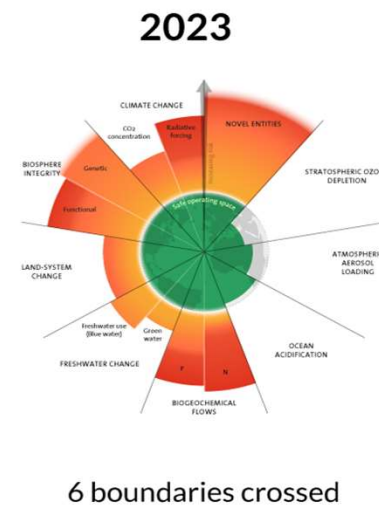
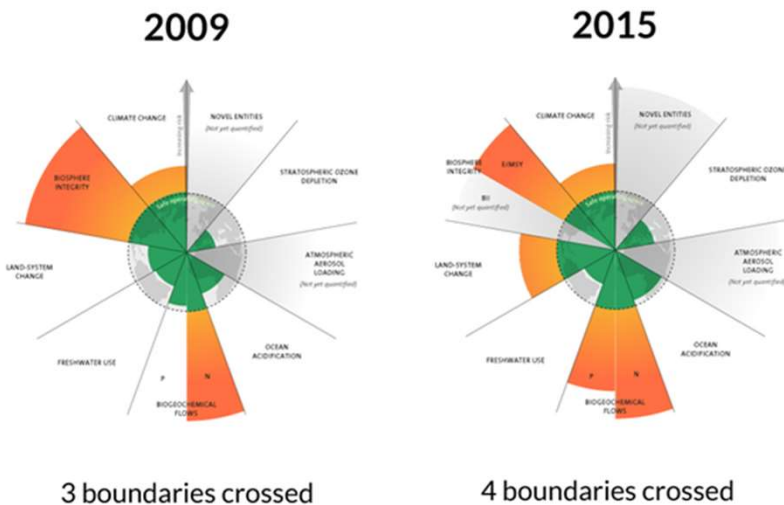
Recycling
Economy



Circular
Economy



Planetary Boundaries



“[The recent] ...update on planetary boundaries clearly depicts a patient that is unwell, as pressure on the planet increases and vital boundaries are being breached. We don’t know how long we can keep transgressing these key boundaries before combined pressures lead to irreversible change and harm.”

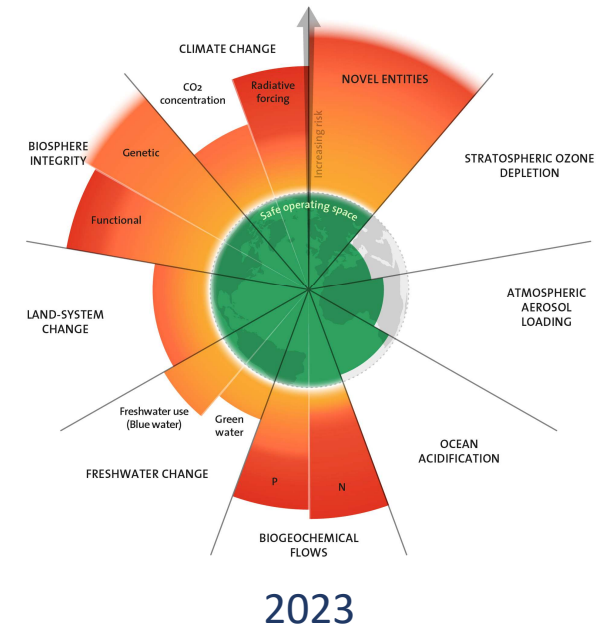
- Johan Rockstrom

Sources: https://www.stockholmresilience.org/5_3d04209a18a2642b2fc162a3.html
 Earth beyond six of nine planetary boundaries | Science Advances
 Planetary boundaries - Stockholm Resilience Centre
 All planetary boundaries mapped out for the first time, six of nine crossed - Stockholm Resilience Centre



SPE Planetary Boundaries

- ***“You can’t manage what you don’t measure”***
- Peter Drucker
- Consideration balanced across all 9 planetary boundaries. We’ve violated 6 of 9 already
 - Biodiversity, natural capital (forests, water, ozone, oceans)
 - Pollution (particulates, chemicals, GHGs)
 - Natural cycles (nitrogen, phosphorus)
- Intentional primary focus on largest, near-term lever well within the Oil & Gas industry control
 - Can you guess what that is?



2023



Today's Challenges Require New Thinking



Regenerative, Inclusive & Equitable,
Restoring Biosphere Vitality, Symbiotic,
Avoiding Further Degradation

Strong Sustainability, Closing Loops,
Broadening Equality & Access to
Energy, Thriving Within Planetary
Boundaries

Wasteful, Linear Economy, Too
Focused on ESG & GHGs, Energy
Security Challenges



The State of our EcoSystem Vitality



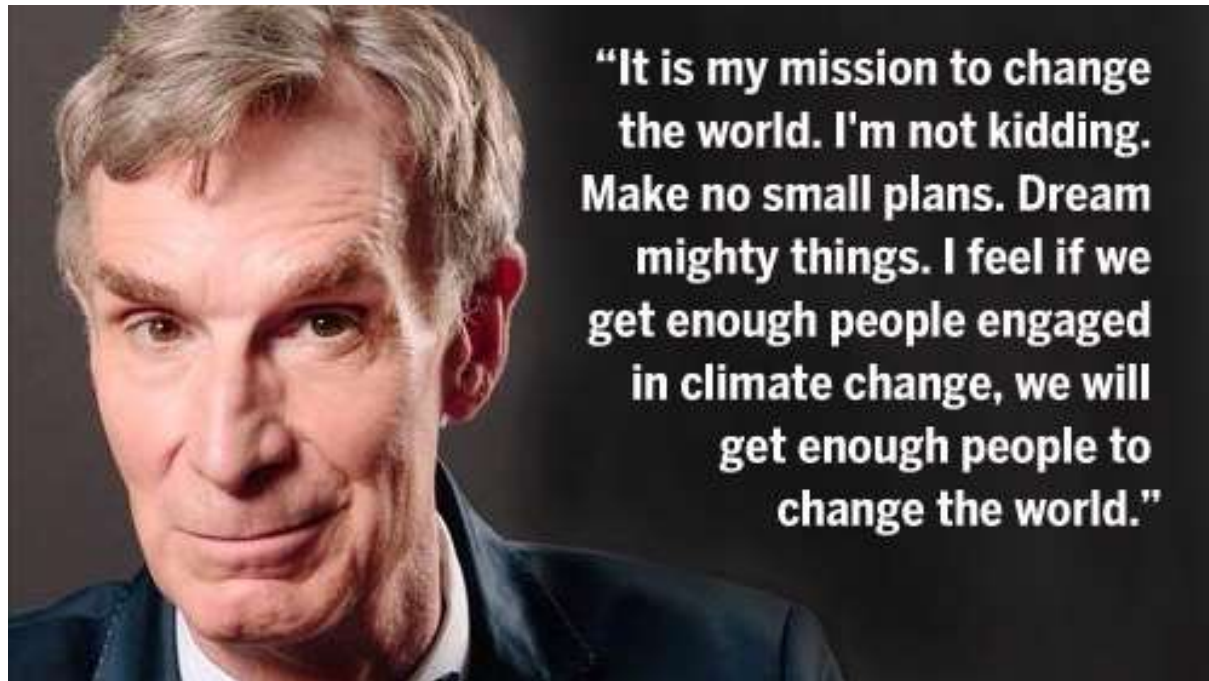
*Unleash the power
of engineering to
solve this problem!*

Global Wildlife (69%)

Land Degraded (75%)

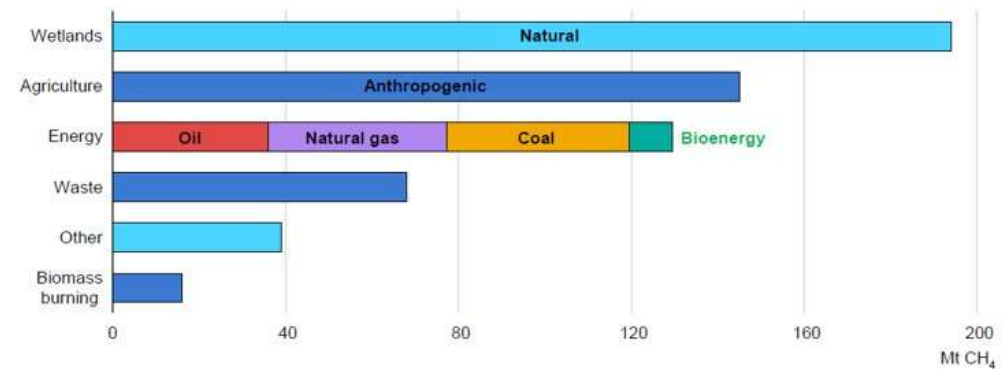
Wetlands Lost (85%)





The Oil & Gas Industry's Role

Figure 1.1 Sources of methane emissions



IEA. All rights reserved.

Source:
<https://www.bloomberg.com/graphics/2021-methane-impact-on-climate/?srnd=green>

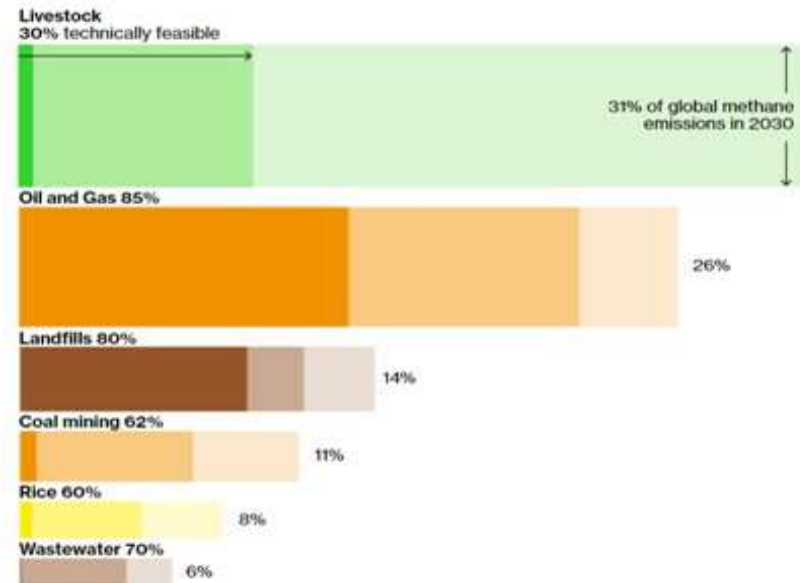


Global Commitment To Emission Reduction



Tools already exist to eliminate 58% of global methane emissions by 2030

■ Technically and economically feasible ■ Technically feasible ■ Residual



The Oil & Gas Industry's Role



People's Voices Challenge Demographics

21 October 2016

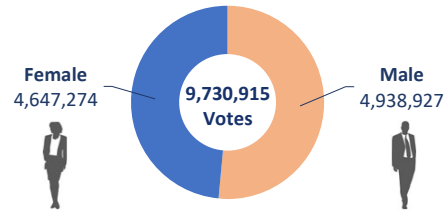


- **Transforming our World: The 2030 Agenda for Sustainable Development**
- **Finalized Text for Adoption** published August 1, 2015
- **Establishes 17 Sustainable Development Goals and 169 Targets**
- **Goal 13:** "Take urgent action to combat climate change and its impacts"
- **Goal 3:** Quality Education is the top goal across all demographics.

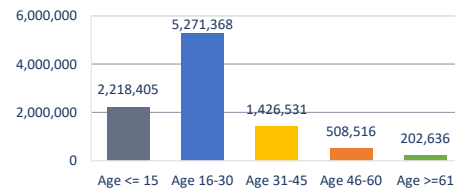
Source: <http://hdr.undp.org/en/2015-report>

Gender/Age

Gender



Age

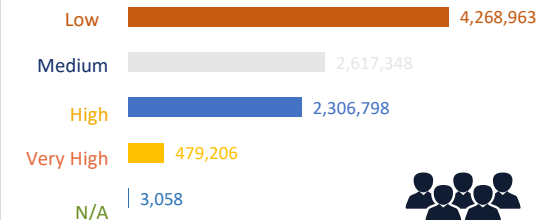


Education/Human Development Index (HDI)

Education

97,581	Unknown
1,017,406	Some Primary
2,607,948	Finished Primary
2,059,149	Finished Secondary
3,948,831	Beyond Secondary

HDI





SDG Roadmap

Accelerating action: An SDG Roadmap for the oil and gas sector

93 ACTIONS ACROSS 8 IMPACT OPPORTUNITIES COVERING 3 SYSTEMIC THEMES

CONVENING THE SECTOR TO HELP REALISE THE AMBITIONS OF THE SDGS AND THE PARIS AGREEMENT



CLIMATE

- Policy and partnerships
- Innovation
- Operations



NATURE

- Resources management
- Biodiversity, land and water stewardship



PEOPLE

- Governance and transparency
- Communities
- Thriving workforces

46

ACTIONS FOR IPIECA



47

OPTIONS FOR OIL AND GAS COMPANIES



3 AFFORDABLE AND CLEAN ENERGY



6 CLEAN WATER AND SANITATION



7 AFFORDABLE AND CLEAN ENERGY



8 DECENT WORK AND ECONOMIC GROWTH



9 INDUSTRY, INNOVATION AND INFRASTRUCTURE



10 REDUCED INEQUALITIES



11 SUSTAINABLE CITIES AND COMMUNITIES



12 RESPONSIBLE CONSUMPTION AND PRODUCTION



13 CLIMATE ACTION



14 LIFE BELOW WATER



15 LIFE ON LAND



16 PEACE, JUSTICE AND STRONG INSTITUTIONS



17 PARTNERSHIPS FOR THE GOALS

2030

Supporting the delivery of the sustainable development agenda

LEARN MORE AND DOWNLOAD THE ROADMAP AT: www.sdg-roadmap.org



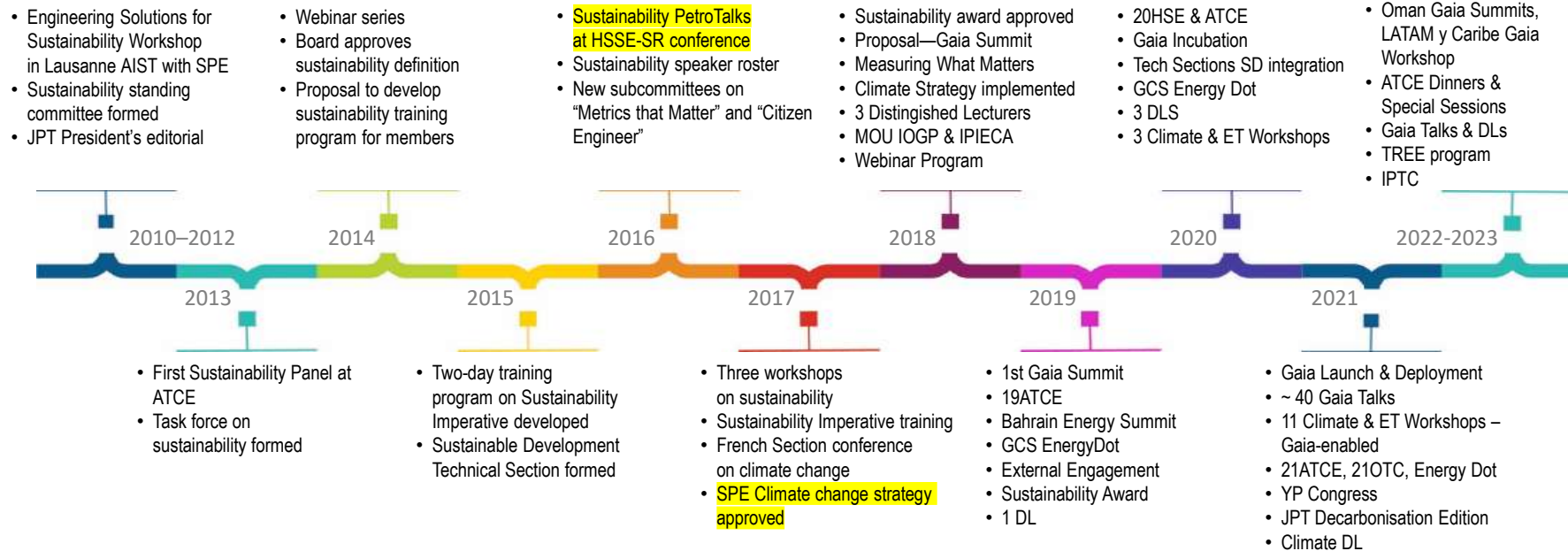
SUSTAINABLE DEVELOPMENT GOALS

1 NO POVERTY 	2 ZERO HUNGER 	3 GOOD HEALTH AND WELL-BEING 	4 QUALITY EDUCATION 	5 GENDER EQUALITY 	6 CLEAN WATER AND SANITATION 
7 AFFORDABLE AND CLEAN ENERGY 	8 DECENT WORK AND ECONOMIC GROWTH 	9 INDUSTRY, INNOVATION AND INFRASTRUCTURE 	10 REDUCED INEQUALITIES 	11 SUSTAINABLE CITIES AND COMMUNITIES 	12 RESPONSIBLE CONSUMPTION AND PRODUCTION 
13 CLIMATE ACTION 	14 LIFE BELOW WATER 	15 LIFE ON LAND 	16 PEACE, JUSTICE AND STRONG INSTITUTIONS 	17 PARTNERSHIPS FOR THE GOALS 	 SUSTAINABLE DEVELOPMENT GOALS




The History of Sustainability as an SPE Discipline

From Externally-Driven to Internally -Driven Source of Pride





SPE Gaia: A Learning and Programming Framework to Empower Oil and Gas Professionals to Act as Change Agents to Deliver Energy Resiliency While Bringing Humanity Back Within Planetary Boundaries

Program Focus Themes



Transform the Energy System



Measure what Matters for Action & Impact



Enable People-Centered Transition



Regenerate Natural Capital

Enabling Behaviors



Engage and Listen



Collaborate to Innovate

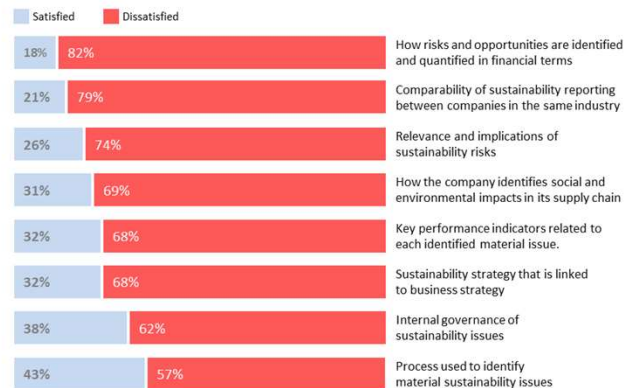


The Journey to Quantify Sustainability Impact



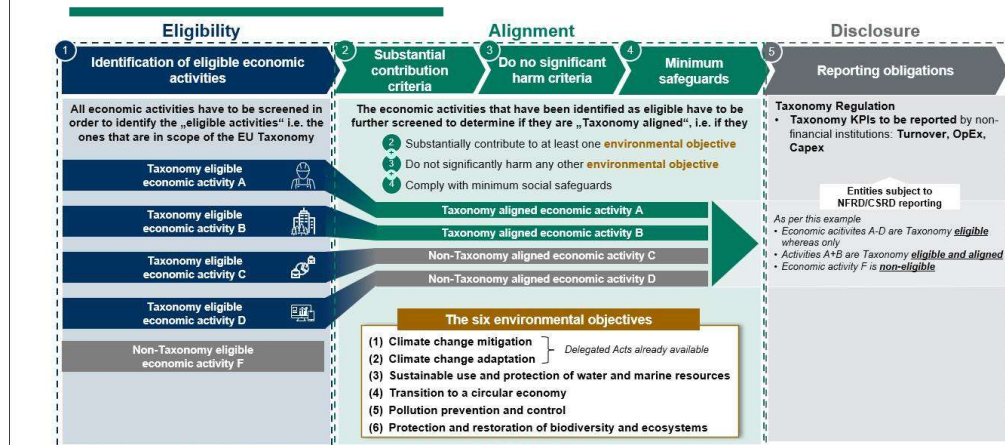
Thirst for Knowledge

Institutional Investors were asked how satisfied they were with the information begin provided by U.S.-listed companies on the following sustainability-related topics:

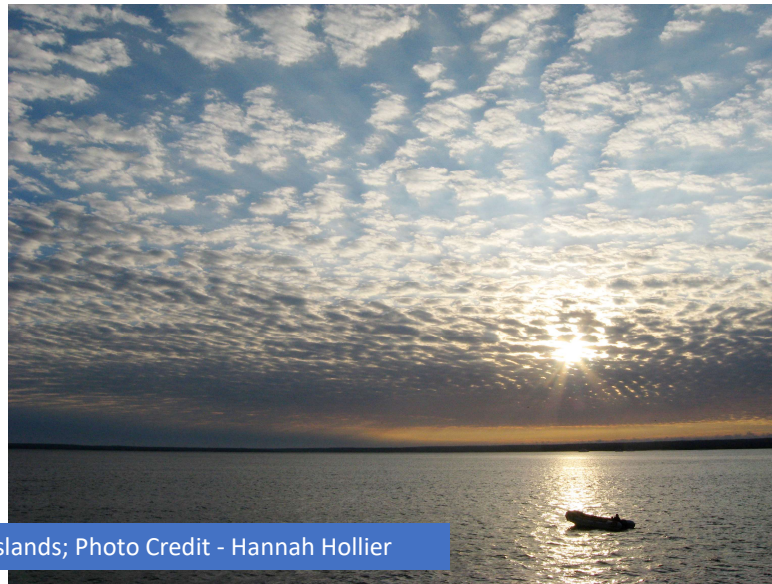


Source: Responses from 29 Institutional Investors surveyed by PWC in February and March 2014 and reported in the Wall Street Journal

Functional logic of the EU Taxonomy



How Clouds Form Over the Oceans?



Galapagos Islands; Photo Credit - Hannah Hollier

“Darwin’s Blind Spot: The Role of Living Interactions in Evolution” which was written by Frank Ryan in 2003.

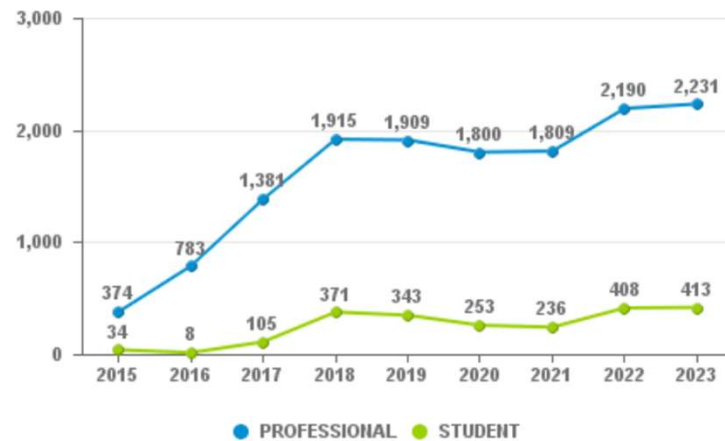


SDTS / Gaia Membership Update



SDTS has **2,644 members** & continues to grow!

Members by Year



Gaia LinkedIn Community has **1,645 members**



We invite you to join both and engage actively!



Gaia Resources



- ▶ Gaia LinkedIn Community: <https://www.linkedin.com/groups/12464854/>
- ▶ Sustainable Development TS: <https://connect.spe.org/sdts/home>
- ▶ Gaia Talks:
<https://streaming.spe.org/?s=gaia>
<https://www.spe.org/en/events/live-events/>
- ▶ Gaia Digital Assets: <https://spe.widencollective.com/c/2bnv38at>
- ▶ Gaia Hub: <https://www.spe.org/en/gaia/>



SPE Sustainable Development Technical Section - Gaia Program - Steering & Advisory Committees

Steering Committee comprised of Officers – Pathway & Priority Leaders & Regional Liaisons



Officers



Trey Shaffer
ATCE HSES 2022 Chair
HSES TD SPEI 2014-'17



Josh Etkind
SDTS & Gaia Chair
2021-2022



Johana Dunlop
Gaia Chair Emeritus 2019-'21
HSES TD SPEI 2017-'20



Sue Staley
HSES TD, SPEI Board
2022-2025



Leon Beugelsdijk



John Butler



Simeon Eburi



Flora Moon



Nihal Mounir



Zahraa Alkalby



Alison Isherwood

Transform the Energy System

Regenerate Natural Capital

Enable People Centered Transition



Alex Moody-Stuart



David Shackleton



Phil Grossweiler
SDTS Chair Emeritus
DL & Gaia Ambassador



Linda Battalora
Advisor



Thraiye Seif Hemed

TREE Initiative [NC&R]



Lotanna Ohazuruike

Regional Gaia Liaisons



Simon Smith
Asia/Australia



Ilyas Saribekov
Russia Caspian



Chinyere 'Princess' Offor
Africa



Deb Ryan
North America
SPEI Board
Gaia RD Liaison



Pauziyah Hamid
Asia



Maria Giulia De Donno
Europe



Oumer Tahir
MENA



Rocio Salas
LATAM y Caribe



SPE Sustainable Development Technical Section - Gaia Program - Steering & Advisory Committees

Advisory Committee: Advisors + Technical Section & Standing Committee liaisons



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Water TS Chair



David Shackleton
MEM TS Vice-Chair



Thomas Halsey
R&D TS Chair



Jim Crompton
DSEA TS



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Silviu Livescu
University of Texas
SPEI, DSEA TD



Tatiana Mitrova
SKOLKOVA, Oxford,
Columbia



David Reid
NOV & SPEI



Ariane Labadens
Schlumberger



Maria Angela Capello
SEG Gaia Liaison



Nils Kaageson-Loe
Baker Hughes



Julien Perez
OGCI



Iman Hill
IOGP



Brian Sullivan
IPIECA



Fawaz Bitar
Chair SPE HSES AC



Matt Haddon
ERM



Marinma Dorado
Mindset Results



Autumn Haagsma
AAPG Gaia Liaison



Beyond Sustainability – parting thoughts



- Who would argue that our way of life and balance with nature is sustainable today? So, we're clearly not trying to sustain that.
- Who would argue that the current state of our ecosystems are in a desirable place?
- We must move beyond sustainability into being stewards of the land and into regenerating the health of our ecosystems in shared reciprocity with the natural systems that sustain us.
- This may sound alien for a petroleum engineer. Why? We find, develop, and optimize the production of natural resources. How can we contribute more?
- What if we had to figure out how to make this work in parallel with our day-job? We have a responsibility to continue producing the safest, lowest GHG intensity hydrocarbons with zero leaks to the environment. If we stop even for a day, it would undermine the global economy. So, it's not either/or, it's both.
- Don't forget about supporting people to help themselves and contribute in any way they can to create social benefits and reduce their total environmental footprint

