



# SES2019

INTERNATIONAL STUDENT  
ENERGY SUMMIT

LONDON, UK  
17 - 20 JULY 2019

## Programme



# Wednesday 17th JULY 2019 - DAY 0

**CHAPTER'S DAY: KEYNOTE** - Michael Liebreich

## OPENING CEREMONY

19.00 - 20.15 - Ondaatje Theatre, Royal Geographical Society

## CULTURAL MINGLE

20.15 - 22.30 - Royal Geographical Society

# Thursday 18th JULY 2019 - DAY 1

## WELCOME

9.00 - 9.15 - Ondaatje Theatre, Royal Geographical Society

## VIDEO KEYNOTE

 - Dr. Fatih Birol

9.15 - 9.20 Ondaatje Theatre, Royal Geographical Society

## KEYNOTE

 - Roger Humphreville, OGCI

9.20 - 9.35 Ondaatje Theatre, Royal Geographical Society

## PLENARY SESSION - DIVERSITY AS A KEY: UNLOCKING A SUSTAINABLE FUTURE

9.35 - 10.40 Ondaatje Theatre, Royal Geographical Society

## PLENARY SESSION - SUPERCHARGING THE SDGs: ENERGY AS AN ENABLER

10.40 - 11.40 Ondaatje Theatre, Royal Geographical Society

## LUNCH

11.40 - 12.50

## BREAKOUT SESSION 1:

12:50 - 13.50

Take me there:  
The  
Decarbonisation  
of Transport  
Ondaatje Theatre,  
RGS

Sustainable  
Finance:  
Accelerating the  
Energy  
Transition  
Education Centre,  
RGS

Step-Over: The  
power of the  
technology  
driven leapfrog  
Huxley LT 308,  
ICL

Fuelling the  
next generation:  
Women in  
energy  
Huxley LT 311, ICL

Moving  
forwards: How  
are the actions  
of Big Oil  
influencing the  
industry?  
Huxley LT 340,  
ICL

## STUDENT PRESENTATIONS

14.00 - 15.00 Royal Geographical Society, Imperial College London

## NETWORKING BREAK

15.00 - 16.00 Royal Geographical Society

## BREAKOUT SESSION 2:

16.00 - 17.00

Negative Emissions Technologies  
Huxley LT 340, ICL

Smart Cities: Cleaner, Greener, Healthier  
Ondaatje Theatre, RGS

Hidden Energy: Global supply and behaviour  
Huxley LT 308, ICL

Emerging Technology Disruptors  
Education Centre, RGS

Charge up! Changes in the electricity generation mix  
Huxley LT 311, ICL

## GALA DINNER

19.00 - 22.30 Natural History Museum

**GALA DINNER KEYNOTE** - Dame Angela Strank

# Friday 19th JULY 2019 - DAY 2

## INNOVATION JAM INTRODUCTION - Ian Duffy

9.00 - 9.05 Ondaatje Theatre, Royal Geographical Society

## COMMENTARY ON ROLE OF YOUTH IN INNOVATION - Luciana Miu

9.05 - 9.15 Ondaatje Theatre, Royal Geographical Society

## VIDEO KEYNOTE - Commissioner Carlos Moedas

9.15 - 9.20 Ondaatje Theatre, Royal Geographical Society

## BP KEYNOTE - Brian Gilvary

9.30 - 9.50 Ondaatje Theatre, Royal Geographical Society

## PLENARY SESSION- ENERGISING BUSINESS: HOW IS BUSINESS DRIVING THE ENERGY TRANSITION?

9.50 - 10.45 Ondaatje Theatre, Royal Geographical Society

## LUNCH

10.45 - 11.40

## **INNOVATION JAM**

11.50 - 13.50 Education Centre (RGS), Great Hall (ICL), Huxley 341 & 342 (ICL), Skempton 301 & 307 & 060ABC & 064AB (ICL)

## **POSTER BREAK**

13.50 - 14.50

## **WORKSHOPS**

14.50 - 16.50

## **RECRUITMENT FAIR**

17.00 - 20.00 Queens Tower Rooms, Imperial College London

## **FINAL NIGHT PARTY**

20.00 - 23.30 Natural History Museum

# **Saturday 20th JULY 2019 - DAY 3**

## **WELCOME & VIDEO KEYNOTE - Jayathma Wickramanayake**

9.20 - 9.50 Ondaatje Theatre, Royal Geographical Society

## **PLENARY SESSION - DRIVING CHANGE: HOW CAN YOUTH CONTINUE TO IMPACT OUR CHANGING ENERGY CLIMATE?**

9.50 - 10.50 Ondaatje Theatre, Royal Geographical Society

## **PLENARY SESSION - WHAT IF? THE FINAL DEBATE**

11.00 - 12.00 Ondaatje Theatre, Royal Geographical Society

## **LUNCH**

12.00 - 13.00

## **KEYNOTE - Serge Peyrat**

13.00 - 13.15 Ondaatje Theatre, Royal Geographical Society

## **CHANGEMAKERS**

13.15 - 14.10 Ondaatje Theatre, Royal Geographical Society

## **INNOVATION JAM FINALS**

14.10 - 14.50 Ondaatje Theatre, Royal Geographical Society

## **CLOSING SESSION**

14.50 - 15.30 Ondaatje Theatre, Royal Geographical Society

# PANEL DESCRIPTIONS AND SPONSORS

## PLENARY SESSION - DIVERSITY AS A KEY: UNLOCKING A SUSTAINABLE FUTURE

sponsored by OGCI Climate Investments

Diversity within a team drives creativity, demands adaptability, generates new ideas from different perspectives and sparks innovation. The sustainable energy system we are striving to create will not only be fiercely complex, but will also encompass billions of people around the world. How do we build diverse, multidisciplinary teams to solve these problems?

### Speakers:

**Rhea Hamilton (Managing Director of Ventures, OGCI Climate Investments),  
Danny Kennedy (CEO, New Energy Nexus),  
Prof. Purnomo Yusgiantoro (Bandung Institute of Technology),  
Harriet Lamb (CEO, Ashden)**

## PLENARY SESSION - SUPERCHARGING THE SDGs: ENERGY AS AN ENABLER

This is the essence of the Sustainable Development Goals (SDGs), a universal call to action to end poverty, protect the planet and ensure that all people enjoy peace and prosperity, as soon as possible. The panel will discuss energy as a driving force for all SDGs, to make life on Earth sustainable. How can clean energy be the driving force behind the SDGs?

### Speakers:

**Princess Abze Djigma (Founder and CEO of AbzeSolar),  
Carolina Karlstrom (Jade Advisory),  
Kali Taylor (Co Founder, Student Energy),  
Abyd Karmali OBE (Climate Finance Executive, Bank of America)**

## BREAKOUT SESSION 1:

### Take me there: The Decarbonisation of Transport

This breakout session will discuss current technological advancements and integration of the electrification of transport. We aim to talk about the interplay of the grid, storage and EVs as well as ethics of autonomous vehicles. What role will digitalisation play for the transportation sector? What major steps can be taken in the transport industry to mitigate global warming?

### Speakers:

**Ralf Pfitzner (VP of Sustainability, Volkswagen),  
Baroness of Cambridge (Chair of the Carbon Trust),  
Dr. Alejandro Rio Galvan (Director, Sustainable Bioenergy Research Consortium),  
Roy Williamson (VP Advanced Mobility, BP),  
Prof. Liu (Tsinghua University)**

### Sustainable Finance: Accelerating the Energy Transition

sponsored by Impax Asset Management

With falling costs of renewable energy technologies, simple deployment of capital offers one of the most efficient methods to mobilise and facilitate the transition to a more sustainable future. The panel will investigate how carbon taxes and dividends, carbon reporting and novel pollution policies will impact emitters of greenhouse gases, as well as the impact that a sustainable energy transition will have on financial markets.

### Speakers:

**Bruce Jenkyn-Jones (Co-head of Listed Equities, Impax Asset Management),  
Audrey Desiderato (Founder and CEO, SunFunder),  
Eva Weightman (Relationship Manager, IETA)  
Raj Thamotheram (Founder, Preventable Surprises)**

## Step-Over: The power of the technology driven leapfrog

The session will discuss how clean energy access and infrastructure can foster social and economical development. Along with other SDGs, access to affordable, clean energy can improve both human settlements and the biosphere. The objective of this session is to understand how clean tech drives other SDGs in a virtuous circle. Progress is inherently linked to technology: can developing countries leapfrog fossil fuels and go straight to sustainable energy sources?

### Speakers:

**Ellen Morris (President and Founder, Sustainable Energy Solutions),**  
**Jay Patel (CEO and Co-founder, Enlight Institute),**  
**Andres Bustamante (Co-founder, EcoSwell)**  
**Dr. Margaret Matinga (Researcher)**

## Fuelling the next generation: Women in energy

sponsored by Equinor

This panel aims to discuss challenges and opportunities for women in the energy sector. Diversity in the energy industry is critical for innovation. More diverse groups and a range of approaches can help to solve problems more efficiently and encourage creative thinking. What role can women play in the energy and what are challenges and opportunities looking forward?

### Speakers:

**Dr Isabelle Christensen (Co-founder, EnerIO),**  
**Dr. Paula McCann Harris (Director Global Stewardship, Schlumberger)**  
**Linda Davis (CEO, Giraffe Energy)**  
**Margaret Mistry (Equinor)**

## Moving forwards: How are the actions of Big Oil influencing the energy industry?

Oil is a fundamental part of the energy economy, however future emission targets call for a change in the status quo. More major oil and gas majors are integrating renewables into their portfolio and expanding into new industries including EV-charging and even in utilities. What are the important decisions to be made by oil-majors and how can the vast financial and technological resources at their finger-tips play in delivering our sustainable energy future?

### Speakers:

**Benj Sykes (UK Country Manager, Orsted),**  
**Dr Carole Nahkhle (Founder and CEO, Crystol Energy),**  
**Olaf Martins (IOGP)**  
**Marta Bjørkestrand (Equinor)**

## BREAKOUT SESSION 2:

### Negative Emissions Technologies

Time is of the essence in the mission to avoid catastrophic global warming however, what if this time element could be addressed? Humanity needs to act fast to remove considerable amounts of carbon dioxide from the atmosphere and negative emissions technologies including carbon-capture, utilisation, and storage (CCUS), bio-energy with carbon-capture and storage (BECCS), geo-engineering, reforestation, direct air capture and enhanced weathering, amongst others.. What technologies are available, at what scale do we expect these technologies to perform at and ultimately, when will their wide-scale adoption take place?

### Speakers:

**David Addison (Virgin Group),**  
**Jon Gluyas (Executive Director, Durham Energy Institute)**  
**Mathilde Fajardy (Imperial College London)**  
**Olaf Martins (IOGP)**

## Smart Cities: Cleaner, Greener, Healthier

sponsored by InnoEnergy

Around the world, cities continue to expand as urbanisation continues to offer improved standards of life compared with rural communities. This panel will look at the how engineers, urban planners and governments are planning and developing the

future of our cities. New technologies incorporating the IoT and connected home energy management systems continue to offer incredible opportunities to intertwine the development of greener cities whilst also offering improved quality of life.

**Speakers:**

**Lucienne Krosse (InnoEnergy),**  
**Ian Gardner (Energy Business, ARUP),**  
**Alfredo Redondo (C40)**  
**Brian Kilkelly (EIT Climate-KIC)**

### Hidden Energy: Global supply and behaviour

Global consumerism is growing at an unprecedented pace. Increasingly, we expect to be able to access what we want, when we want it. A culture of fast fashion, new technology and instant information is developing before us. What is the energy and environmental cost of this new consumer behaviour? Which industries are the most energy intensive and where is this energy being used? Next day delivery, international food trends and single use plastics and their implications for a sustainable energy future need to be transparent, so that the consumer can fully understand their purchasing power.

**Speakers:**

**Hannah Phang (Futerra)**  
**Divya Sukumar (Signol)**  
**Shakti Ramkumar**

### Emerging Technology Disrupters

Innovation plays a pivotal role in continually improving our lives. Recent developments in the 'Enertech' space are rapidly disrupting aspects of the energy industry including traditional models for electricity delivery as well as control and distribution of electrons. This panel also intends to investigate how individuals, communities, governments and nations empower themselves to adapt, develop and understand the implications of these emerging technology disruptors.

**Speakers:**

**Tim Green (Imperial College London),**  
**Irena Spazzpan (Partner, SystemIQ)**  
**Justyna Swat (Open source energy)**  
**Vera Silva (GE Renewable Energy)**

### Charge up! Changes in the electricity generation mix

Tremendous changes to the global portfolio of electricity generating units are occurring at an unprecedented pace. On the demand-side, distributed energy resources, smart homes, electric vehicles and energy storage systems are impacting traditional markets and delivering new business models. How are grid system operators, power producers, utilities and market authorities reacting to these changes?

**Speakers:**

**Marissa Leshnov (Grid Alternatives),**  
**Alistair Davies (Head of Energy Economics, EDF)**  
**Prof. He (Tsinghua University)**  
**Carolina Tortora (National Grid)**

## PLENARY SESSION- ENERGISING BUSINESS: HOW IS BUSINESS DRIVING THE ENERGY TRANSITION?

sponsored by BP

Businesses play a key role in delivering a sustainable energy future. In order to achieve this goal, considerable improvements are required in environmental accountability, sustainable corporate social responsibility (CSR) practices and implementation of effective sustainability and energy strategies. Can investment in sustainability be the ingredient for long-term success? How are businesses taking the lead in sustainable practices whilst understanding the impacts of their energy usage?

**Speakers:**

**Peter Kanning (Sustainable Finance, HSBC),**  
**Marcus Extavour (Executive Director Energy, XPRIZE)**  
**Marina Bulova (Director University Partnerships, Schlumberger)**

**Nigel Purcell (Investment Director, ENGIE)**

## **PLENARY SESSION- DRIVING CHANGE: HOW CAN YOUTH CONTINUE TO IMPACT OUR CHANGING ENERGY CLIMATE?**

Every day we are faced with new challenges arising in the energy sector and these challenges continue to open doors to diverse roles and opportunities. We need inspired, eager, young students to spearhead change and become the next generation of energy leaders. As the next generation of energy leaders, how do we drive innovation and build connections to continue to play a pivotal role in our changing energy climate?

### **Speakers:**

**Chebet Lesan (CEO, Bright Green Renewable Energy)**

**Kirsten Dunlop (CEO, Climate-KIC),**

**Larissa Crawford (Indigenous researcher)**

**Seth Schultz (Global Covenant of Mayors)**

## **PLENARY SESSION- WHAT IF? THE FINAL DEBATE**

A panel of high-profile energy experts will engage in a structured, dynamic debate around 4 or 5 potential energy future scenarios and the assumptions that they are based upon. This debate will allow the summit to dive deep into the details of the energy transition, to uncover the impacts that energy has on our lives, just how flexible and resilient our current system is, and the exciting possibilities for the future. What are the different Energy outlooks for 2050? Why do they differ so much and what are the underlying assumptions driving those scenarios? Are they comparable, and what can we learn from them?

### **Speakers:**

**Chris Nelder (Rocky Mountain Institute),**

**Mallika Ishwaran (Senior Economist, Shell),**

**Joeri Rogelj (Imperial College London)**

**Elena Giannakopoulou (BNEF)**

## **WORKSHOPS**

### **ØRSTED - THE WIND FARM GAME**

**Imperial College London Skempton 301**

The Ørsted vision is a world that runs entirely on green energy. Ørsted develops, constructs and operates offshore and onshore wind farms, bioenergy plants and innovative waste-to-energy solutions and provides smart energy products to its customers. This workshop will provide you with an exceptional opportunity to learn about the challenges facing developers of offshore wind farms and how to tackle these challenges head-on.



### **LCEDN - DEVELOPING LOW-CARBON PROJECTS IN THE GLOBAL SOUTH**

**Royal Geographical Society Education Centre**

This workshop will put your skills to the test in solving low-carbon related project development problems in the global south.



### **CARBON TRACKER INITIATIVE - THE MYTHS OF THE TRANSITION**

**Imperial College London Skempton 307**

This workshop will delve into the multitude of issues that accompany the energy transition and the many different stakeholders involved. The workshop will investigate the financial and environmental risks associated with the existing energy system and the importance of the global transition to a sustainable energy future.





## IMPERIAL COLLEGE LONDON - BIOENERGY WITH CARBON CAPTURE AND STORAGE: NECESSARY, DESIRABLE, POSSIBLE?

### Imperial College London Skempton 060ABC

This workshop will provide an overview of BECCS in the context of delivering the negative emissions required to meet the Paris Climate Agreement, then explore its complex social and ecological implications and constraints that are often excluded from climate- and energy-focused analyses.



## STATKRAFT - EFFICIENTLY INTEGRATING RENEWABLES INTO THE UK ELECTRICITY SYSTEM THROUGH VIRTUAL POWER PLANTS

### Imperial College London Huxley 341 & 342

Statkraft is Europe's largest renewable energy generator and trader and is at the centre of the green energy revolution. The workshop will provide an overview of the UK electricity system and how it's changing. The workshop will delve into the role of different market operators, explore different electricity generation types and outline the role of VPPs on the grid. The workshop will provide an incredible opportunity to learn about Statkraft's VPP systems and their Flex Optimisation approach to the European electricity market.



## ENERGY PREDICTION PRIZE - FORECASTING ENERGY TRENDS: WHY DOES IT MATTER, AND CAN WE GET BETTER AT IT?

### Imperial College London Skempton 064AB

This workshop will provide delegates with an insight into the value of good forecasts, and some of the current challenges companies and governments experience when making forecasts. The workshop will delve into making good forecasts and measuring the quality of predictions. Delegates will then be involved in making their own predictions on several important indicators in the global energy system and learn about some of the main drivers of these metrics in the process. The workshop will give delegates a better understanding of how a more transparent and measurable approach to forecasting in the energy sector could strengthen our ability to make good decisions.



## ABB - STRATEGIC CHALLENGES FOR OUR FUTURE ENERGY SYSTEMS - AND OUR PLANET!

### Imperial College London ABB Demonstration Lab

This workshop will explore the key challenges we must overcome to sustain decarbonised, robust, secure and affordable energy systems. The workshop will shift to look at some of the technological solutions that will play a part in overcoming the challenges and provide a brief overview of a range of technologies. This will be followed by a visit to two world-class demonstration facilities at Imperial College London where delegates get a more in-depth and practical experience of Carbon Capture and Digital Electricity Grids.



## XPRIZE - BREAKTHROUGH CLIMATE INNOVATIONS WITH XPRIZE

### Imperial College London Great Hall

XPRIZE believes in a future of energy abundance -- where innovation has helped humanity tackle and overcome our greatest challenges in climate change, sustainability, and energy systems. But we need your input! Join us for a fun and interactive workshop hosted by XPRIZE at which you and your friends and Student Energy peers can help us shape the climate and energy solutions of the future. Working in small groups, your challenge will be to develop and pitch concepts for breakthrough innovation to combat climate change. Each pitch must include business, technical, social, and public engagement perspectives. Cash and prizes will be awarded to the winners!



# STUDENTS ON STAGE

## AN INTERDISCIPLINARY APPROACH - Imperial College London, Huxley LT 311

**David Krantz** - Community partnership for disaster-response solar PV

**Sara Shuli** - Miscanthus as a Green Wall and Energy Source

**Ali El Hadi Berjawi** - An Evaluation Framework for Whole Energy Systems Scenarios

**Camilla Wikström** - Comparative Analysis of Co-created Smart City Solutions

**Alycia Leonard** - Using Geospatial AI for Energy Access

**Walid Bin Habib** - Edge Loss Characterisation of Separated Silicon Solar Cells

**Diego Moya** - Global GIS-based energy demand density assessment for estimating spatio-temporal energy demand profiles in the energy policy discussion

**Jhud Mikhail Aberilla** - Techno-economic and environmental assessment of small-scale power systems for remote communities

## EMPOWERING YOUNG ENERGY LEADERS - Royal Geographical Society, Ondaatje Theatre

**Stephen Okocha** - Harnessing conventional fuel production using solar-actuated pyrolysis reactor from waste plastics in Nigeria

**Joaquin Quesada Zeljkovic** - Light Humanity NGO: Light a Life

**Olukunle Owolabi** - Prospects and Challenges of Solar Electricity Generation in Nigeria

**Merfat Alsabban** - Design and Mechanistic Study of Highly-durable Carbon Coated Cobalt Diphosphide Core-shell Nanostructure Electrocatalyst for the Efficient and Stable Oxygen Evolution Reaction

**Tianna Philippot** - Sustainable Solar Cookers

**Simlindile Kosi** - The Truly Conscious Capitalist

**Vaughn-Xavier Jameer** - Presentation: Biogas: Tackling Food waste and Nutrients at The University of the West Indies, St. Augustine

**Sujay Simha Sairam** - TUEmpowerAfrica

## ENACTING THE EQUITABLE TRANSITION - Imperial College London, Huxley LT 308

**Burag Gurden** - Governance of the Water-Energy Nexus and Knowledge Co-production

**McKenzie Tilstra** - Imagining our Energy Future: Breaking Barriers with Accessible Solutions

**Doyinsola Olagunju** - "UP NEPA!" — THE UNTARRED ROAD TO FIXING POWER SUPPLY IN NIGERIA

**José Armando Gastelo-Roque** - Technical analysis of a 12kW hybrid PV/wind micro-grid with battery storage for rural electrification in Laguna Grande, Pisco, Perú

**Muhammad Hassan Bin Afzal** - Embracing Off-Grid Communities in Rural Bangladesh to Promote Sustainable Living

**Nassia Salvador** - The incidence of young people in the formulation of energy policies in Bolivia

**Ryan Jose Sumaya** - Sizing of 2MW Rooftop Solar PV System and Its Effect to the Daily Load Profile of the Province of Marinduque, Philippines

## ENERGY IN A CHANGING CLIMATE - Imperial College London, Huxley LT 340

**Danish Shahzad** - Assessment of Carbon Credits of KPK Micro Hydro Power Project

**Vasco Zeferina** - The cooling demand of Office buildings in response to climate change and the potential effects on the power network

**Davide Tonelli** - H2 Fueled Gas Turbines

**Elizabeth Bullock** - Correcting the sampling bias of linear boreholes for geothermal exploration

**Iker Zulbaran** - Algae Photoreactor Biofuel

**Hamidreza Erfani Gahrooei** - Reactive Density-Driven CO<sub>2</sub> Mixing in Sandstone Aquifers

**Emre Yildirim** - Fusion: Energy's Final Frontier?

**Nicholas Perry** - An Energy Life Cycle Analysis of Renewable Energy Options for Vietnam

## INTEGRATING TECHNOLOGY - Royal Geographical Society, Education Centre

**Prithvi Singh Chauhan** - Nanoparticle application in Oil and Gas industry

**Deanntha Kanniah** - South Africa: In the face of Darkness

**Roberto Cabrer** - Geophysical EM Modeling for Energy Resource Assessment

**Maximilian Parzen** - Cost reduction of Solar Thermal Plants by integrating solar PV systems

**Conor Deane** - Developing a thermal comfort control function using detailed energy simulation for future energy scenarios

**James Sinclair** - Miscibility Gap Alloys

**Jorge Antonio Puente Huerta** - Seismic exploration in the Altar basin, northern Gulf of California

