

Global Geothermal Development Plan (GGDP) at the Iceland Geothermal Conference (IGC) 2018

HARPA CONFERENCE CENTER | REYKJAVIK, ICELAND | APRIL 24-27, 2018



HOSTED BY THE MINISTRY OF FOREIGN AFFAIRS, ICELAND



Photo credit: Pixabay

ESMAP MISSION

The Energy Sector Management Assistance Program (ESMAP) is a global knowledge and technical assistance program administered by the World Bank. It provides analytical and advisory services to low- and middle-income countries to increase their know-how and institutional capacity to achieve environmentally sustainable energy solutions for poverty reduction and economic growth. ESMAP is funded by Australia, Austria, Denmark, the European Commission, Finland, France, Germany, Iceland, Italy, Japan, Lithuania, the Netherlands, Norway, the Rockefeller Foundation, Sweden, Switzerland, and the United Kingdom, as well as the World Bank.

World Bank/ESMAP Global Geothermal Development Plan (GGDP)

HARPA CONFERENCE CENTER | APRIL 26, 2018 | D4-RIMA HALL | 13:30-15:30

On behalf of the World Bank Group Energy Sector Management Assistance Program (ESMAP), we welcome you to Reykjavik and to the ESMAP Global Geothermal Development Plan Event. The event is organized by ESMAP, in partnership with the Iceland Ministry of Foreign Affairs.

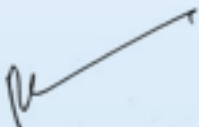
The World Bank and its Energy Sector Management Assistance Program (ESMAP) are key sponsors of the 4th Iceland Geothermal Conference. Our engagement and presence at the event focuses on a session to be held on April 26th organized jointly with the Icelandic Ministry of Foreign Affairs and Iceland Geothermal to commemorate the 5th anniversary of the Global Geothermal Development Plan (GGDP), launched at the IGC in Reykjavik in 2013. The session will showcase how the GGDP has helped de-risk the preliminary stages of geothermal development to unlock investment along the entire geothermal value chain. It will give an overview of geothermal projects in the World Bank, and provide a platform for World Bank client countries to share their experiences highlighting the commonalities and the differences in approaches taken in a variety of markets. To date, the GGDP has:

- Mobilized \$235 million of concessional financing which has been tapped into by multilateral development banks, including the World Bank, to finance upstream activities and help develop bankable projects.
- At the World Bank, the GGDP has influenced the design of our geothermal operations and provided technical support our task teams preparing these projects. Most of the 6 ongoing geothermal projects and all the projects under preparation provide financing for up-stream activities to de-risk geothermal fields.
- As a result, the GGDP has helped craft a new approach to escalate the development of this important energy source and to contribute to the transition to renewable energy in developing countries.

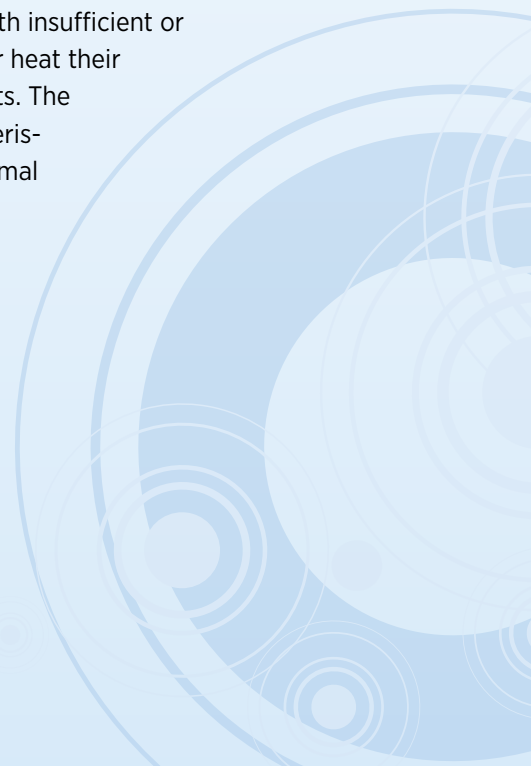
One billion people still live without electricity and hundreds of millions more live with insufficient or unreliable service around the World. In addition, almost **three billion** people cook or heat their homes with polluting fuels resulting in widespread health and environmental impacts. The World Bank/ESMAP GGDP was designed specifically to address the special characteristics of the geothermal sector to unlock the investments needed to scale up geothermal development.

We are pleased that you have chosen to join us and encourage you to let us know if we can be of further assistance during your participation.

Sincerely,



Rohit Khanna
ESMAP Manager
Energy and Extractives Global Practice, The World Bank Group





HARPA CONFERENCE CENTER | REYKJAVIK, ICELAND

TIME	DAY 1 TUESDAY APRIL 24
08:00 -17:00	Exhibition and Side Events Exhibition Area
18:00 -19:30	Welcome Reception Exhibition Area
	DAY 2 WEDNESDAY APRIL 25
8:00	Coffee/Tea
8:15	Opening Plenary Silfurberg A + B hall Moderator Juliet Ann Newson , Director, Iceland School of Energy Opening Speech Mr. Gudni Th. Johannesson , President of Iceland Welcome Address Gudlaugur Thor Thordarson , Minister for Foreign Affairs Keynote Adnan Z. Amin , Director General of IRENA Keynote Ms. Almudena Mateos , Senior Energy Specialist, Europe and Central Asia, Energy & Extractives Global Practice World Bank Keynote Cecilia Edling Östman , Founder Heatpower Keynote Dr. Marit Brommer , Executive Director of the International Geothermal Association (IGA)
10:00	Coffee/Tea Networking Break
10:30	<u>See IGC Detailed Agenda</u>
12:30	Lunch
1:30	Fieldtrips Meet at the front entrance of the Harpa Conference Center
19:30 -23:30	Networking Dinner at the Hilton Hotel

DAY 3 THURSDAY APRIL 26	
8:00	Coffee/Tea
8:30	See IGC Detailed Agenda
10:30	Coffee/Tea Networking Break
11:30	See IGC Detailed Agenda
12:40	See IGC Detailed Agenda
1:30	World Bank/ESMAP Global Geothermal Development Plan: Changing the Course of Geothermal Development Conference Room D4-Rima Hall
	<p>INTRODUCTION Mr. Thrainn Fridriksson, Senior Energy Specialist, Energy & Extractives Global Practice, The World Bank</p> <p>MODERATOR Ms. Almudena Mateos, Senior Energy Specialist, Europe and Central Asia, Energy & Extractives Global Practice World Bank</p> <p style="text-align: center;">COUNTRY EXPERIENCES SPEAKERS</p> <p>Indonesia Mr. Edwin Syahrudad, Director Financing and Investment, PT SMI, Republic of Indonesia</p> <p>Turkey Ms. Ruken Öztekin, Manager, Technology, Research and Business Development Department, TKB and Coşkun Kanberoğlu, Department Head, Engineering and Technical Consultancy, TSKB, TSKB, Republic of Turkey</p> <p>Dominica Mr. Vince Henderson, Permanent Representative and Ambassador of the Commonwealth of Dominica to the United Nations in New York</p> <p>St Lucia Ms. Charlin Bodley, Energy Officer, Department of Infrastructure, Ports and Energy, Government of Saint Lucia</p> <p>Kenya Mr. John Omenge, Secretary Geo-Exploration, is the Head of the Geo-Exploration Directorate, Ministry of Energy, Nairobi, Kenya</p> <p>Gender and Geothermal Ms. Ellen Morris, Ph.D., Energy and Environment Faculty, Columbia University and President, Sustainable Energy Solutions (WBG Consultant)</p> <p>CLOSING REMARKS Ms. María Erla Marelsdóttir, Icelandic Ministry for Foreign Affairs</p>
15:30	Coffee/Tea Networking Break
16:00	PLENARY CLOSING Conference Room Silfurberg A & B hall
18:00	Women in Energy Iceland, Mixer Event
DAY 4 FRIDAY APRIL 27	
9:00 -21:00	Excursions

The Fourth Iceland Geothermal Conference (IGC)



SPEAKERS AND MODERATORS' BIOS



Keynote Speaker: Mr. Rohit Khanna

Program Manager, Energy Sector Management Assistance Program (ESMAP), and Practice Manager in the Energy and Extractives Global Practice, the World Bank Group

Rohit oversees a portfolio of analytical and advisory activities to inform the energy sector policy dialogue. Under his direction, ESMAP has grown exponentially to support over 250 activities in more than 130 countries; influence World Bank, IDA, and IBRD financing; and leverage billions from global partners to support the growth of and strengthen the design and implementation of investment projects in the sector.

Rohit joined The World Bank in 2000, and prior to assuming his current position at ESMAP, he worked on the Global Environment Facility (GEF) and Clean Technology Fund (CTF) at the World Bank. Before joining the World Bank, he was a Program Officer in the UN Environment Program, and worked for Save the Children Fund in its Bhutan Field Office.



Introduction: Mr. Thrainn Fridriksson

Senior Energy Specialist, ESMAP, The World Bank

Thrainn Fridriksson has worked at ESMAP as a geothermal energy specialist since 2014. He has led the development of knowledge products, including authoring a technical report on Greenhouse Gases from Geothermal Power Production and managed various technical assistance activities. Thrainn also provides technical support to other Task Teams working on geothermal projects at the World Bank, such as in Turkey, Armenia, Ethiopia, Kenya and Fiji. Thrainn has led the Global Geothermal Development Plan since May 2017.

Thrainn is a geothermal geochemist by training, holding a BS degree in geology from the University of Iceland and a Ph.D. in geochemistry from Stanford University. Before joining World Bank/ESMAP, Thrainn worked at Iceland GeoSurvey (ÍSOR) for 11 years. At ÍSOR his tasks included conventional geothermal geochemistry applied to production monitoring and exploration. During this time he led research projects on natural CO₂ emission geothermal fields in Iceland. He was also responsible for project management, training and technical coordination of projects for the Icelandic Agency for International Development (ICEIDA).



Moderator: Ms. Almudena Mateos Merino

Senior Energy Specialist in the Europe and Central Asia Region, Energy and Extractives Global Practice, the World Bank Group

Almudena is the focal point for renewable energy and leads geothermal and solar operations in Turkey and Armenia. From 2011-2017, she was with the Bank's Energy Sector Management Assistance Program, where she was a core team member of the Global Geothermal Development Plan and the team leader for Technical Assistance Program for grid-connected Solar Technologies.

Almudena also led ESMAP's Renewable Energy Training Program for World Bank and IFC staff. Prior to joining ESMAP, she worked for the Latin America and Caribbean Energy Unit of the World Bank, where she worked on renewable energy, access, and utility reform projects in Honduras, Argentina, and Nicaragua. Almudena holds a BS in Environmental Sciences from the University of Alcalá in Spain, a Masters in Environmental Engineering and Management from the Industrial Organization School in Madrid, and a Masters in International Affairs from Columbia University.

COUNTRY EXPERIENCES SPEAKERS



Indonesia | Mr. Edwin Syahrudaz **Director Financing and Investment, PT SMI**

Mr. Edwin Syahrudaz has been appointed as Director of the Company since August 2014 pursuant to the Ministry of Finance Decree No. 389/KMK.06/2014.

He serves as Director of Financing and Investment, managing the Company's Financing and Investment, as well as Facility Monitoring, Administration and Custody activities.

He joined PT SMI since 2009 as an Executive Vice President/Division Head of Financing & Investment. Before joining the Company, he served for 9 years in several positions in PT Danareksa (Persero) with the latest position as Director at PT Danareksa Sekuritas. In addition to that, he worked as an Analyst at PT Penthasena Securities (1996–1999), PT Amsteel Securities Indonesia (1995–1996), The Industrial Bank of Japan, Jakarta Branch (1993–1995) and as Audit Committee Member, PT Timah, Tbk. (Persero) (2011–2012).

He earned his Bachelor's Degree in Economics from University of Indonesia in 1993.



Turkey | Ms. Ruken Öztekin **Manager, Technology, Research and Business Development Department, Turkey**

Ruken is Manager in Technology, Research and Business Development Department of Development Bank of Turkey. She was previously a Senior Specialist in Turk Eximbank at Country Credits Department responsible for the credits extended by the bank to Central Asian and Eastern European Republics for both trade finance and project finance facilities.

She started her career at Ziraat Bank attending the Certificate Program named as "Practical Banking Course" offered by Training and Research Center of the Bank. She has joined the Development Bank of Turkey in July 2008. She is a graduate of TED Ankara College and received her bachelor's degree in Environmental Engineer from Middle East Technical University.

She is Risk Sharing Mechanism Coordinator of Turkey Geothermal Development Project of World Bank.



Turkey | Coşkun Kanberoğlu **Development Finance Institutions (TSKB)**

Coşkun graduated from the Department of Chemical Engineering, Boğaziçi University. He began his professional career during his graduate program at Boğaziçi University as research assistant. After having worked two years at Henkel-Ecolab Company as Technical Sales Engineer and two years at Sandoz Pharmaceutical Company as Production Chief, he joined Engineering Department of Industrial Development Bank of Turkey (TSKB) in 1997 as senior engineer. He gave service to Engineering Department as Department Head until August 2017, since then, he has been working in Development Finance Institutions as Department Head.



Dominica | His Excellency Dr. Vince Henderson **Permanent Representative and Ambassador of the Commonwealth of Dominica to the United Nations in New York**

Dr. Vince Henderson has been the Permanent Representative and Ambassador of the Commonwealth of Dominica to the United Nations in New York since March 2010. He is the chairman of SIDS Dock, a sustainable energy initiative for Small Island Developing States (SIDS), since 2011. SIDS DOCK has a membership of 31 Small Island Developing States (SIDS). Dr. Henderson is also the chairman of the Government of Dominica Geothermal Energy Development and Negotiations Team.

Dr. Henderson was elected to the Parliament of the Commonwealth of Dominica for two consecutive terms in 2000 and 2005. During that time, he also served as Minister of Housing and Physical Planning; Agriculture and the Environment; Education, Human Resource Development, Sports and Youth Affairs; and Foreign Affairs, Immigration and Labour.

Dr. Henderson holds a Doctor of Law and Policy degree from Northeastern University in Boston, Massachusetts, USA. He also holds a LL.M (master of laws) degree, an LL.B (Hons) (Bachelor of Laws), a Bachelor of Science degree in Computer Science and a Diploma of Education.



St Lucia | Ms. Charlin Bodley
Energy Officer within the Department of Infrastructure, Ports and Energy
with the Government of Saint Lucia

Charlin is a certified project manager who has managed several small-scale government renewable energy and energy efficiency projects in Saint Lucia. She is also the officer assigned to the Geothermal Resource Development Project and continues to make committed contributions to the development of the resource in Saint Lucia. As sustainable energy specialist, Charlin has also served the Caribbean region through her role as a consultant with the German International Development Cooperation, GIZ, completing studies on the integration of electric mobility into energy systems in CARICOM member states and a 100% renewable energy transition of Saint Lucia's electricity sector.

Charlin's representation of the Government in the field of sustainable energy extends both regionally and internationally. In 2017, she served as Saint Lucia's National Coordinator at the "Future Energy Expo Astana 2017" in Kazakhstan. She continues to provide indelible technical support as an Energy Officer in various areas of renewable energy and energy efficiency.

Charlin holds a Bachelor's of Science Degree in Environmental Engineering and a Master's of Energy Engineering in Energy and Environmental Management. Charlin is the proud representative of the Government of Saint Lucia in the 6-month fellowship in Geothermal Energy offered by the United Nations University-Geothermal Training Program in Iceland from April to October 2018.



Kenya | Mr. John M. Omenge
Secretary Geo-Exploration, is the Head of the Geo-Exploration Directorate,
Ministry of Energy, Nairobi, Kenya

Mr. Omenge has worked for over 33 years as a Geologist for the Government of Kenya, 9 of the years during which he has served as Chief Geologist, and later, Secretary, Geo-Exploration at the Ministry of Energy.

He is the Alternate Director of Board to the Principal Secretary, State Department of Energy, at the Kenya Nuclear Electricity Board (KNEB)

The Geo-Exploration Directorate takes care of among others, matters of Exploration and Development of Geothermal and Nuclear Energy Resources on behalf of the Government of Kenya.

Mr. Omenge holds a BSc degree in Geology from the University of Poona, India and MSc Mineral Exploration and Mining Geology Degree from Leicester University, UK.

He is a Fellow of the Geological Society of Kenya and Registered Geologist by the Geologists Registration Board of Kenya.



Gender and Geothermal | Ms. Ellen Morris, Ph.D. | Energy and Environment Faculty,
Columbia University and President, Sustainable Energy Solutions

Ellen Morris, Ph.D., is a world-recognized expert on energy and international development, with a particular focus on policy analysis, research, and strategy development on energy access, gender equality, and enterprise development throughout Africa, Asia, and Latin America. Dr. Morris teaches at Columbia University's School of International and Public Affairs and is a Faculty Affiliate at the Center on Global Energy Policy. Ellen is an Ambassador for The Clean Energy Education and Empowerment Initiative that was launched by the Clean Energy Ministerial to close the gender gap in STEM fields. In addition to her faculty appointment, Ellen is the President and Founder of Sustainable Energy Solutions, an international consulting services company that promotes the increased use and deployment of clean energy technologies and services in developing countries.

Ellen serves as an advisor and Board Member for social enterprises focused on clean energy, including EnVenture (Uganda), Simpa Networks (India), Earth Spark International (Haiti), and Empowered by Light (Zambia) and was the Energy Program Advisor for the Clinton Global Initiative. She started her career in clean energy working for the National Renewable Energy Laboratory, in the geothermal program. In the early part of her career, she worked as a Fellow on the Science, Space and Technology Committee of the U.S. Congress and was an exploration geophysicist for Texaco. She holds a Bachelor of Science degree in geophysical engineering from the Colorado School of Mines and a doctoral degree in marine geophysics from the University of Rhode Island.

RENEWABLE ENERGY PROGRAM

THE CHALLENGE

Dramatic reductions in the cost of renewable energy and rapid innovations in smart grids, storage, and connectivity are driving large scale clean energy investments, especially in developing countries. The Paris Agreement on climate change is providing further impetus to scale up renewable energy, as countries are implementing policies to deliver on commitments. But despite these efforts, challenges remain that could hold back investment and the transition to a low carbon future.

ESMAP'S RESPONSE

ESMAP's work on renewable energy tackles the challenge from multiple angles. It helps countries to understand their resource potential, to de-risk geothermal resource validation and unlock financing for projects, to remove barriers to the integration of renewables in the grid, and to scale-up solar power, crowding in private sector financing.



To learn more about the ESMAP Renewable Energy Program, visit us at:
<http://www.esmap.org/renewable-energy>

The final list of presentations and other materials will be made available
after the event has concluded:
https://www.esmap.org/GGDP_Iceland_2018

**AGENDA AT A GLANCE APRIL 24-27
HARPA CONFERENCE CENTER | REYKJAVIK, ICELAND**

DAY 1 | TUESDAY APRIL 24, 2018

08:00 **Exhibition and Side Events | Exhibition Area**
18:00 **Welcome Reception | Exhibition Area**

DAY 2 | WEDNESDAY APRIL 25, 2018

08:00 **Coffee/Tea**
08:15 **Opening Plenary | Silfurberg A + B hall**
10:00 **Coffee/Tea Networking Break**
10:30 **See IGC Detailed Agenda**
12:30 **Lunch**
1:30 **Fieldtrips**
19:30 **Networking Dinner at the Hilton Hotel**

DAY 3 | THURSDAY APRIL 26, 2018

08:00 **Coffee/Tea**
08:30 **See IGC Detailed Agenda**
10:30 **Coffee/Tea Networking Break**
11:30 **See IGC Detailed Agenda**
12:40 **Lunch**

**1:30 World Bank/ESMAP Global Geothermal Development Plan:
Changing the Course of Geothermal Development | Conference Room D4-Rima Hall**

**WB/ESMAP Introduction | Mr. Thráinn Fridriksson, Senior Energy Specialist,
Energy & Extractives Global Practice, The World Bank**
**Moderator | Ms. Almudena Mateos-Merino, Senior Energy Specialist,
Europe and Central Asia, Energy & Extractives Global Practice, The World Bank**

COUNTRY EXPERIENCES

Indonesia | Mr. Edwin Syahrudat, PT SMI

Turkey | Ms. Ruken Öztekin, TKB and Coşkun Kanberoğlu, TSKB

Dominica | Mr. Vince Henderson

St Lucia | Ms. Charlin Bodley, Ministry of Infrastructure

Kenya | Mr. John Omenge, Ministry of Energy and Petroleum

Gender and Geothermal | Ms. Ellen Morris, Sustainable Energy Solutions, World Bank

CLOSING REMARKS | Ms. María Erla Marelsdóttir, Icelandic Ministry for Foreign Affairs

15:30 **Coffee/Tea Networking Break**
16:00 **PLENARY CLOSING | Conference Room Silfurberg A & B hall**
18:00 **Women in Energy—Iceland, Mixer Event**

DAY 4 | FRIDAY APRIL 27, 2018 | EXCURSIONS