

Integrated Resource and Resilience Planning (IRRP) for the Power Sector

1725 I Street, NW
Concourse Level
Washington, DC 20006

Monday, March 6, 2017

8:30 – 9:00 **Participant Registration/Breakfast**

9:00 – 9:45 **Introduction and Course Context**

Monica Bansal - USAID
Aleisha Khan - ICF

9:45 – 10:45 **SESSION ONE: Power Sector Planning in Relation to Policies and Investments**

Presenters: Juanita Haydel, Bill Prindle, Maria Scheller – ICF

Session: IRRP is a screening strategy to identify cost effective investments in generation and transmission and distribution (T&D) system infrastructure. IRRP addresses the potential impacts of uncertainties and changing factors: climate (e.g. resilience), politics (e.g. import/export), technology development (e.g., distributed energy resources), and economic growth (e.g., unknown future demand). Using examples in the U.S. and developing countries, this session introduces IRRP and how it can shape, and be shaped by, policies and investments. Presenters also explore the policy implications of demand side management, and discuss who uses this type of planning process and why. *(Presentation will be followed by Q&A)*

Learning Objectives: Participants will be able to describe IRRP and why it is effective for power sector growth in developing countries. Participants will understand how IRRP can inform decision making regarding providing needed power, including alternatives to building power plants or other system expansion investments. Participants will also learn about the types of decision makers and decisions that are linked to IRRP.

10:45 – 12:15 **SESSION TWO: What Planning Looks Like - Part I , Components and Process**

Presenters: Maria Scheller, Molly Hellmuth, Sanjay Chandra, Ken Collison, Bill Prindle – ICF

Session: This session will take a look at climate resiliency as an influencing factor in IRRP, and at each of the components for a fully-scoped IRRP: load forecasting, supply-side resources, distributed energy resources (DERs), T&D, and demand. Specific components, like transmission, can be optimized within an IRRP and framed to answer questions of need and trade-off. This session covers the critical needs of the IRRP process including data collection and stakeholder involvement. *(Presentation will be followed by Q&A)*

Learning Objectives: Participants will understand what an IRRP process has the capacity to accomplish in terms of informing power sector planning and resiliency, and how to apply best practices for IRRP implementation regarding who needs to be involved (e.g. government ministries, regulators, utilities). Participants will learn about the opportunities and limitations of this type of planning, details of specific components, and how climate risks have a significant influence on the power sector and are included in IRRP.

12:15 – 12:45 **Lunch**

12:45 – 1:45 **SESSION THREE: Scaling an IRRP**

Discussion Lead: Maria Scheller – ICF

Session: The IRRP process should be scaled to be consistent with the country circumstances and stage of power system planning and development. This session will lead participants in a discussion of different scopes of planning for an IRRP based on objectives (i.e., the kinds of questions an IRRP can answer) and critical requirements of an IRRP for effective implementation ("readiness"), such as policies, data availability, etc. Speakers will talk about additional value that can be incorporated (e.g., system feasibility studies on renewable energy potential pre-IRRIP, and site-specific evaluations post-IRRIP), and limitations.

Learning Objectives: Participants will learn how stakeholder objectives, immediate needs, and limitations in the country related to data, regulation, and local expertise can all be used to scope an IRRP process.

1:45 – 3:00

SESSION FOUR: What Planning Looks Like - Part 2, Modeling

Presenters: Maria Scheller, Molly Hellmuth – ICF

Session: Modeling different scenarios is an important part of the IRRP process. This session reviews analytical/modeling options and discusses their different approaches and trade-offs. The session also covers how climate risk and resiliency are integrated into the modeling process. The IPM tool, currently used in Tanzania and Ghana, will be demonstrated. Presenters will provide interactive activities for participants to learn more about the different data and modeling process. Participants will discuss the update process for IRRP outputs, and capacity and expertise needed among the implementing team.

Learning Objectives: Participants will understand the considerations involved in selecting a modeling tool, the trade-offs between many of the available modeling tool options, and understand the expertise needed to execute the modeling component of an IRRP in the field.

3:00 – 3:15

Coffee Break

3:15 – 4:15

SESSION FIVE: Options for Results/Outputs

Presenters: Juanita Haydel, Maria Scheller, Sanjay Chandra – ICF

Session: This final session explores how investors and international donors can benefit from and use the different possible outputs from an IRRP, including a Power Sector Master Plan (including DER potential) and specific project plans. The presenters will discuss how IRRP can serve as a pathway to competitive procurement and related regulatory policies, how to think about PPPs and other types of investment, and the link between project approval and consistency with the power plan. Presenters will also discuss the political motivation behind IRRP – the political advantages of planning, as well as the roadblocks to using a resulting plan. *(Presentation will be followed by Q&A)*

Learning Objectives: Participants will be able to evaluate how different IRRP outputs can be used to support various objectives in countries of interest.

4:15 – 4:45

Closing Remarks, Brief Evaluation, and Final Q&A



Integrated Resource and Resilience Planning (IRRP) for the Power Sector EVENT SPEAKERS

Juanita Haydel:

Juanita Haydel is a Senior Vice President with ICF's Energy Advisory and Solutions (EAS) Group where she leads the Federal Practice. She has over 30 years of experience in energy, environmental and industrial market analyses. She is currently the Team Leader for the USAID/Tanzania IRRP program, and also supports U.S. DOE in the area of energy infrastructure, and related grid issues, including the Quadrennial Energy Review process. She has been involved in Integrated Resource Planning proceedings and supported IRP regulatory development processes. She holds a Master of Management Science from the MIT Sloan School of Management (Finance and Applied Economics) and has a Bachelor of Science in Civil Engineering, also from MIT. She is a certified Project Management Professional (PMP). Contact her at Juanita.Haydel@icf.com.

William Prindle:

William Prindle is the Energy Efficiency Senior Advisor for USAID/Tanzania's IRRP project and Senior Technical Advisor for USAID/Washington's Energy Efficiency for Clean Development program (EECDP). He is an international expert in DSM policy, program development, technologies, and analytics, as well as green building technologies and standards. He has worked on these topics for 40 years on projects in North America, Tanzania, Ghana, Bangladesh, India, and China, including building energy codes, DSM analysis and policy, and appliance labeling and standards. He holds an M.S. in Energy Management and Policy from the University of Pennsylvania and a B.A. in Psychology from Swarthmore College. Contact him at William.Prindle@icf.com.

Maria Scheller:

Maria Scheller is a Vice President in ICF's Energy Advisory Services practice area with 20 years of experience in long-term planning; electric market fundamentals; economic analysis; market operations; rate impact analysis; competitive procurement; resource planning; forward market modeling; and financial analysis of wholesale power assets. Ms. Scheller manages work including asset valuation, due diligence, litigation, and strategic studies. This work involves review and creation of economic and technical aspects of power supply including: avoided energy supply cost determination; forward price curve analysis; plant dispatch analysis; power sector restructuring; power plant siting, revenue forecasts and financial performance of assets in competitive and deregulating markets; expansion and strategic planning for generation companies. Ms. Scheller received a B.S. in Economics from The Pennsylvania State University. Contact her at Maria.Scheller@icf.com

Kenneth Collison:

Kenneth Collison is a Vice President at ICF and currently leads the Energy Advisory Service's Transmission business. Mr. Collison assists utilities, developers, finance agencies, and regulatory agencies in planning, modeling and analysis of transmission and distribution systems. His recent engagements include assessment of the impact of transmission on system reliability, congestion and curtailment studies, interconnection studies, benefits of power markets restructuring, distribution strategy development, and transmission asset valuation. Mr. Collison was a speaker at USAID's Fundamentals of Energy Systems for Program Managers Workshop in Johannesburg, South Africa, and USAID's LEAD workshop at ACEF in Manila, Philippines. He holds an MBA and M.S. from MIT and a B.S. (EE) from the University of Science and Technology, Ghana. Contact him at Kenneth.Collison@icf.com.

Molly Hellmuth:

Molly Hellmuth is the Climate Resiliency Senior Advisor for USAID's IRRP projects in Ghana and Tanzania. She is an international expert in water resources, climate risk management and resilient development. She has over 20 years of



international experience, and has developed climate risk management strategies, tools, models, and guidelines for various clients, including for USAID, the African Development Bank, the World Bank, the ASEAN Centre for Energy, the US Millennium Challenge Corporation (MCC), the Western Electric Coordinating Council (WECC), and the U.S. Departments of Defense and Energy (DOD, DOE), amongst others. She has provided guidance on building climate resilience in the power sector for the U.S. MCC, and WECC, and has developed specific guidance on climate risk and resilience of hydropower plants for USAID and DOE. She holds a PhD and M.S. in Civil and Environmental Engineering from the University of Colorado-Boulder, a B.S. in Environmental Studies, and a B.A. in French. Contact her at Molly.Hellmuth@icf.com.

Sanjay Chandra:

Sanjay Chandra is a Principal at ICF and leads clean energy development efforts with ICF’s Sustainability Management Services Division. Mr. Chandra has 20+ years of global experience spanning renewable energy, infrastructure, and environmental science and technology. He has spent 10 years in the clean energy industry, working with solar, wind, and other renewable electricity projects. Since 2015 Mr. Chandra has supported USAID Clean Power Asia performing strategic assessment of renewable energy in the Lower Mekong region of Southeast Asia. He holds an MBA from the George Washington University, a M.S. in Environmental Engineering from Virginia Tech, and a B.S. in Civil Engineering from Indian Institute of Technology. Contact him at Sanjay.Chandra@icf.com.