



Title: Feasibility Study for 20 MW Hybrid Solar and Wind Park in Colombia

Principal Investigator: Abbas Ghassemi

Sponsor: Columbian Electric Company


Summary: NMSU leads a bi-national team to assess the Colombian solar and wind resources, looking at different technology options, anticipated performance, and evaluating the economics of solar and wind power technologies. The NMSU team also evaluates the potential environmental impacts, assesses tariffs, and assists with drafting legal documents and agreements within the Colombia context. The team is developing a basic wind resource map of the Colombian coastal region that will be useful for future wind power development.

NMSU is also partnering with both the Colombian and American renewable energy industry to assist with this study for Colombia. Notably, NMSU is partnering with Wind Forces, which specializes in sophisticated and the most accurate solar and wind resource modeling using advanced atmospheric models with supercomputers. NMSU is also partnering with Humberto Rodriguez, who is one of Colombia's most experienced energy consultants based in Bogotá, and not only familiar with solar and wind technologies, but also Colombian energy and environmental regulations. He has extensive government and industry contacts in Colombia.

NMSU's highly qualified and unique renewable energy development team is experienced in Latin American solar and wind energy development and solar and wind resource assessment. The study includes:

- Conduct sophisticated solar and wind energy modeling for Colombia using cutting edge atmospheric resource models
- Develop a regional (coastal or other) Colombian wind energy map
- Define the energy and environmental regulatory realities for Colombia
- Create partnerships with leading U.S. solar and wind industry companies
- Select the solar and wind technologies that offer the best combination of energy production, capital cost, operating cost, and financing
- Complete a detailed and realistic ~ 4 MW solar and ~ 16 MW wind energy feasibility assessment for a renewable energy park and how complementary these systems are with each other

The team will produce a high quality solar and wind resource map for a selected regional area of Colombia (coastal region or other areas of interest). This type of data is crucial in



making accurate long-term energy projections and establishing the realistic ROI for a potential 20 MW solar/wind farm. The information generated will be sufficiently detailed to present the expected energy performance and economics of a 20 MW solar/wind farm to potential investors, while assessing the environmental impacts, benefits, and regulatory hurdles.