Short Biography: Dr. Gordon Huang is a Tier 1 Canada Research Chair in Energy and Environment, and Executive Director of the Institute for Energy, Environment and Sustainable Communities at the University of Regina (U of R), Canada; during 2003 to 2018, he was Associate Dean of Engineering (U of R). He is also Fellow of the Canadian Academy of Engineering, President of the International Society for Environmental Information Sciences, Honorary Doctor of Science at McMaster University. He also acts (or acted) as editor-in-chief for 2 international journals (one with an SCI impact factor of 4.425). He holds BSc from Peking University (China), MSc from Simon Fraser University (Canada) and PhD from McMaster University (Canada). Since the 1990s, Huang has led over 200 environment-related research projects, produced over 1000 peer-refereed international journal papers (with an SCI-based H-index of 69 in *Science Citation Index under the Web of Science), and supervised over 100 Master/PhD stud*ents. Over 40 of his PhD graduates were appointed as faculty members at universities in Canada, USA, UK, Singapore, Hong Kong and China.

Title: A chance-constrained small modular reactor siting model for the Province of Saskatchewan, Canada

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Abstract: In this study, a chance-constrained small modular reactor siting (CCSS) model has been proposed for planning regional electric power systems in the Province of Saskatchewan under the pressure of greenhouse gas emissions mitigation. Through incorporating interval linear programming (ILP), chance-constrained programming (CCP), and mixed-integer programming (MIP) methods in an optimization framework, the CCSS model could effectively deal with multiple uncertain information expressed as probability distribution and intervals in constraints and objectives. Since locations of retired coal-fired power stations have been used as new sites for small modular reactor (SMR), this model could provide the construction planning for SMR in terms of its sizes and sites. Various solutions to power generation and capacity expansion with different risk levels were obtained under the objective of minimal system costs. Results are helpful for identifying optimized strategies to increase the proportion of renewable energy under satisfying emission constraints. Model without introducing the technology of SMR has been comprehensively compared with the CCSS model to recognise the effects of SMR on system costs and greenhouse gas emissions. Results also indicate that the CCSS model is effective for supporting long-term clean and renewable energy utilization as well as emissions reduction policy formulation in Saskatchewan.