On Wednesday 11 November 05:00-22:00 GMT, we'll be making some site updates on Taylor & Francis Online. You'll still be able to search, browse and read our articles, where access rights already apply. Registration, purchasing, activation of tokens, eprints and other features of Your Account will be unavailable during this scheduled work.

Journal of Sustainable Finance & Investment ›

Volume 1, 2011 - Issue 2

451 Views | 1 CrossRef citations to date | 0 Altmetric

RESEARCH ARTICLES

Peer-to-peer financing mechanisms to accelerate renewable energy deployment

K. Branker, E. Shackles & J. M. Pearce

Pages 138-155 | Published online: 09 Aug 2011

Cite this article

Sample our Economics, Finance, Business & Industry Journals >> Sign in here to start your access to the latest two volumes for 14 days

Full Article | Figures & data | References | Citations | Metrics

Reprints & Permissions | Read this article | Share

Abstract

Despite the clear need to reduce greenhouse gas emissions, lack of access to capital and appropriate financing mechanisms has limited the deployment of renewable energy technologies (RETs). Feed-in tariff (FIT) programmes have been used successfully in many countries to make RETs more economically feasible. Unfortunately, the large capital costs of RETs can result both in the slow uptake of FIT programmes and incomplete capture of deployment potential. Subsidies are concentrated in financial institutions rather than the greater population as traditional bank loans are required to fund RET projects. This article critically analyses and considers the political, financial and logistical risks of an innovative peer-to-peer (P2P) financing mechanism.

This mechanism has the goal of increasing RET deployment capacity under an FIT programme in an effort to equitably distribute both the environmental and economic advantages throughout the entire population. Using the Ontario FIT programme as a case study, this article illustrates how the guaranteed income stream from a solar photovoltaic system can be modelled as an investment and how P2P lending mechanisms can then be used to provide capital for the initial costs. The requirements for and limitations of these types of funding mechanisms for RETs are quantified and discussed and future work to deploy this methodology is described.

Keywords:

feed-in tariff | funding innovation | microfinance | peer-to-peer lending | photovoltaic | renewable energy | sustainability

Acknowledgements

The authors would like to acknowledge H. Nguyen and A. Nosrat for technical assistance and Natural Sciences and Engineering Research Council of Canada for funding of this work. The authors would also like to thank P. Durand for helpful discussions; as well as C. Law, T. Carpenter and M. Pathak for reviewing the manuscript.

Notes

Organizations:

- Community Lend (2006): www.communitylend.com/
- Kiva (2005): www.kiva.org/about
- Lending Club (2006): www.lendingclub.com/info/how-social-lending-works.action
- Microplace (2006): www.microplace.com/learn_more/howitworks
- MYC4 (2006): www.myc4.com/About/WHAT_IS_MYC4
- Prosper – Prosper (2005): www.prosper.com/welcome/how_it_works.aspx
- United Properity (2008): www.unitedprosperity.org/us/how_up_works
- Virgin Money (2001/2002): www.virginmoney.com/worldwide/

• Wokai (2006): www.wokai.org/f/about/index.php

Current restrictions apply to where these organizations operate their lending and borrowing market. All websites accessed in July 2009.

Green Loans for Green Home Improvement www.prosper.com/loans/personal/green/

The TREC is a non-profit, co-operative, environmental organization. Community power co-operatives are organized to develop local member-owned co-operative renewable energy projects. Visit: www.trec.on.ca/

Registered Educational Savings Plan in Canada. RESPs allow parents, friends or family members to put money away in a special savings account that will only become accessible when the child enrolls in a post-secondary educational programme. More information available via www.hrsdc.gc.ca/eng/learning/education_savings/public/resp.shtml

An escrow account is a third-party holding account. In a waterfall payment scheme, the highest priority investor is paid first, followed by the next-highest priority investor and so on.

Detailed rules and programme details for the Ontario FIT programme can be found at www.powerauthority.on.ca/FIT/

Technical abbreviations: W: Watt – measure of electrical power; kW: kilo-watt which is 1,000 W (1,000 W). Used to describe the power capacity of an electrical generator; kWh: kilo-watt Hour – measure of electrical energy used; MWh: 1,000 kWh; ¢/kWh: cents/kilo-watt hour (a rate for sale of electricity used by the utility).

RETScreen is a decision support tool provided by Natural Resources Canada (NRCan). This is free software that can be used globally to evaluate energy production, emissions reductions, financial viability and risk involved for various types of RETs based on average local metrological data.

The analysis is done at nominal rates without accounting for inflation, since loan interest rates are also at nominal interest rates. All dollars are in Canadian Dollars unless specified otherwise.

Bankruptcy in Ontario, 2009 www.bankruptcy-ontario.org/0ntario_exemptions.htm

California Solar Shade Control Act, California Codes, Public Resource Code Sections 25980–25986. The California Public Resources Code can be found at www.leginfo.ca.gov/calaw.html

Parallel metering: Uses 2 m wired in parallel to track the flow of energy into and out of the home. The disadvantages and advantages of this metering system can be discussed with the local utility and varies depending on jurisdiction.

Related research

People also read | Recommended articles | Cited by 1

Understanding the implications of FinTech Peer-to-Peer (P2P) lending during the COVID-19 pandemic

Khakan Najaf et al.
Journal of Sustainable Finance & Investment
Published online: 26 Apr 2021

Information for

- Authors
- R&D professionals
- Editors
- Librarians
- Societies

Open access

- Overview
- Open journals
- Open Select
- Dove Medical Press
- F1000Research

Opportunities

- Reprints and e-prints
- Advertising solutions
- Accelerated publication
- Corporate access solutions

Help and information

- Help and contact
- Newsroom
- All journals
- Books

Keep up to date

Register to receive personalised research and resources by email

Sign me up

Copyright © 2026 Informa UK Limited Privacy policy

Cookies Terms & conditions Accessibility

Registered in England & Wales No. 01072954
5 Howick Place | London | SW1P 1WG

Taylor & Francis by informa