

POLICY INNOVATION AND CO-ORDINATION OFFICE

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Engaging the Community to Develop a Model for Sustainable Energy Futures:
A Case Study of Two Prospective Solar Communities in Hong Kong

透過社區參與建立可持續能源發展的未來模型：

以香港兩個潛在太陽能社區為案例

EXECUTIVE SUMMARY
OF FINAL REPORT

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EXECUTIVE SUMMARY

1. Abstract of the research

Urban solar has become a global trend as solar photovoltaic (PV) costs continue to decline and policy-makers seek effective post-Fukushima climate/ energy strategies. Community-based solar initiatives have emerged in many major cities including Seoul, Tokyo, Singapore, London, and New York. In Hong Kong, the introduction of a feed-in tariff (FiT) Scheme in October 2018 presents opportunities to realise the underexploited solar PV potential in this city. This, however, raises various questions: Are solar communities a viable energy option for Hong Kong? Can Hong Kong pursue sustainable energy futures that partly depend on solar communities? What can Hong Kong learn from the experience of leading PV cities elsewhere? How can Hong Kong manage the technical, economic, and socio-political and institutional challenges to solar development, including the new opportunities offered by the FiT policy?

This is a one year, interdisciplinary, scenario-based research project, involving a comparative study of two prospective solar communities: Fairview Park (FP; 錦綉花園) in Yuen Long and Hong Lok Yuen (HLY; 康樂園) Tai Po. The potential of solar communities as an energy transition pathway will be analysed by tracking and explaining the ex ante and ex post responses of prospective solar households and solar-powered schools in response to the introduction of the FiT policy. A policy model has been developed to examine, and explain how and to what extent community inputs in solar development can contribute to energy transitions.

The study is based on data collected from a sample of approximately 76 households and two schools from the two case communities as well as 21 stakeholder meetings. Face-to-face interviews, deliberative and engagement events (involving interactive online solar maps, scenario narratives, deliberative workshops) were utilised to generate an extensive original database. A multi-disciplinary research team has been assembled to integrate expertise in the fields of energy policy and governance, solar resource assessment, geographical information systems, and deliberative participation.

Our study has seven major findings:

- (1) The FiT Scheme is an effective policy in stimulating a substantial growth of new solar projects in Hong Kong and arousing some solar interests in our case communities, but it has not yet mainstreamed solar at both city and community levels;
- (2) Our multi-method solar assessment results find that the two case communities have rich solar resources. They alone have the potential to contribute to 1/10 of the government estimates of 660 MW of solar that could be realised by 2030;
- (3) The two communities have seven types of community capitals and a number of high-capacity residential actors. These community capacities can help the government to realise more ambitious solar targets;
- (4) The FiT is perceived as an effective policy of shortening payback period, among other perceived benefits;

- (5) The FiT is however effective only to a certain extent in fostering solar development in Hong Kong. The FiT is insufficient to address the multi-facet barriers faced by interested households;
- (6) The introduction of FiT Scheme is a missed opportunity for the government to utilise community platforms for accelerating low-carbon transitions through urban solar; and
- (7) Hong Kong's recent solar policy are initiatives in line with a global trend, but Hong Kong is in general lagging behind in setting a clear solar target and an advanced energy policy framework. There is a need for Hong Kong to accelerate the deployment of solar.

Project outputs include a guiding model for engaging communities in solar development, a guide book of solarised communities, one working paper, and two papers to be submitted for publication in top-tiered journals. The project contributes to enhancing energy literacy in Hong Kong and promotes rational debates about local energy options and transitions.

2. Policy implications and recommendations

We have two major policy recommendations with sub-sets of suggestions as follows:

(1) **The government needs to develop a community solar policy in Hong Kong**

- i. In the *long-term decarbonisation strategies up to 2050 planned to be drawn by the Hong Kong Government by 2020*(LegCo, 2018b)(LegCo, 2018b), the Hong Kong Government needs to strategically prioritise community solar development as a viable local low-carbon option, rather than prioritising the option of importing more low-carbon electricity from Guangdong;
- ii. The government needs to set a *clear and meaningful solar target* to provide guidance for solar development in Hong Kong;
- iii. The government needs to *better develop and utilise solar resource assessment, to support evidence-based target-setting* for solar power;
- iv. The government needs to *strengthen the FiT Scheme*. Revisiting FiT rates, opening up the option of net metering, improved transparency of the permitting process; reconsidering the role of the two power utilities as the primary agents for solar deployment, are the four key areas that worth particular attention;
- v. The government needs to deploy an intelligent mix of policy instruments beyond the FiT to effectively address the multiple barriers perceived by prospective solar householders. Four prioritised policies include: a green technology policy, a community solar empowerment policy, regulatory measures (to target building-related institutional barriers), and economic measures; and
- vi. The government needs to revisit and consider revamping SCAs to enable community solar as a viable resource for Hong Kong in meeting low-carbon energy challenges.

(2) In a broader perspective, the government needs to develop a community-based energy planning and policy-making system which should be underpinned by the following five elements:

- i. *A citizen centered approach*: which fully recognises the values and potentials of engaging the public and communities in energy policy-making;
- ii. Utilising “community” as a governing platform in which the government can garner and mobilise rich, critical, and unique capacities that exist in communities to enhance its governing power to deliver rapid and deep low-carbon transitions;
- iii. An emphasis on *local (community scale) energy system optimisation* of local consumption patterns, solar generation, and local electricity storage systems;
- iv. Community as an innovation, demonstration, and trialling site for low-carbon transitions for the advancements of technologies, as well as policies; and
- v. *A participatory policy-making system* as an unpinning mechanism: to enable community inputs to be fed into each stage of energy policy-making, from agenda setting, to policy formulation, policy implementation, policy monitoring, and to policy evaluation.