Prosuming and poverty
The shifting of solar entitlement within a UK housing estate

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ABSTRACT

This paper explores how seven families in social housing started producing and consuming - 'prosuming' - solar power, and the difference it made to their lives. And yet at the outset, many of the households ignored the offer of the free solar panels. There was a distinct lack of solar entitlement – prosuming was associated with "posh" areas not those with social housing. However, what was striking was how quickly this changed. As panels appeared on roofs; knowledge became embodied; and friends shared solar stories, so the physical and social fabric of the estate began to change. Alongside this was a growing sense that solar power belonged here and a desire to share it within the community. Using a Social Practice Theory framework, but also drawing on Time Geography, the study analysed prosuming as a voluntary 'project' over four seasons. This involved prosuming practitioners actively "mobilising" three elements - meanings, skills and materials - and "orchestrating" social practices, such as laundering, to the fulfilment of the project. Additionally, the empirical research highlighted the important role of two dominant, institutional projects: 'Feeding-the-Meter' and 'Maintaining-Family-Routines', in making space for prosuming in the daily paths of busy families. What emerged over four seasons was the transformation of a number of project-practitioners but also the genesis of a new Prosuming Project. One that was not just based on simultaneously generating and consuming solar power, but also had the potential to be about saving, storing and sharing energy within a low-income community.

## 1.	INTRODUCTION

"Well the money I save means… I won't have to eat into my food budget…The saving on my electric will go extra onto my gas so then I won't be running out and I can afford to heat my home then."

This is a case study of how seven families in social housing started producing and consuming - 'prosuming' - solar power and the difference it made to their lives. The research provides

insights into how the prosuming of solar power is embedded in everyday life; how it can be supported or challenged by dominant institutional family projects; and how householders may develop new skills, understandings, and ways of using materials as they become more experienced prosumers. As far as I am aware, this is the first study that examines the evolution of prosuming of solar power within a disadvantaged community. It directly engages with the call for more studies to explore not only winners but also "*losers in sustainability transitions*"[1].

2.   THEORECTICAL FRAMWORK

From the outset of my research I was interested in knowing what happens when you give social housing tenants, living in a low-income community, the opportunity to be able to produce and consume their own solar power. How would they adapt their day-to-day routines to capture solar power? What impact would it have on their domestic life? Would their finances and well-being improve, assuming they become producers and consumers of solar power - 'prosumers'?

I define prosuming as deliberately and simultaneously producing and consuming electricity, but this is not as straightforward as it sounds. Solar production can vary depending on weather, seasons and changing daylight hours. Its consumption is also affected by which appliances are used and when. On top of this, households have to negotiate how prosuming fits with domestic routines such as laundering or cooking, as well as with work and family life.

Using a Social Practice Theory framework, but also drawing on Time Geography, [2][3][4][5][6] the research analysed prosuming as a voluntary 'project' over four seasons and across three stages: adopting, establishing and committing to it. This involved prosuming practitioners actively "*mobilising*" [7] three elements - meanings, skills and materials - and "*orchestrating*"[8] social practices to the fulfilment of the project. The study addressed the research question: 'How and why does prosuming evolve for social housing tenants?'

3.   METHODOLOGY

As Bonevski et al highlight "*researchers continue to struggle to access, engage and retain participants from socially disadvantaged groups*" [9]. Given this, I collaborated with a social housing provider who helped me recruit seven households living in one of the top ten percent most deprived areas of the country. They case study was focused on exploring the evolution of prosuming across four seasons and over ten months. Serial interviews helped me to build trust and rapport with the interviewees [10] but also retain all seven households to the completion of the study.

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Over the months of conducting the research I reflected on the additional responsibilities a researcher has in conducting an energy study within a community vulnerable to fuel poverty. This coincided with the desire of the interviewees to share their experiences more widely so others could benefit. Together, we collaborated on a booklet that was sent to several hundred households by the local authority, and additionally informed the solar PV rollout programme of two other councils. I also worked with the interviewees to produce a film 'Take 7'[i] of their lived energy experiences. While in-depth interviews can provide stories and thick, rich descriptions for use in print, I felt a film, using the original recorded voices, could "*provide rich views into worlds often marginalized in mainstream discourse*" [11].

4.   KEY FINDINGS & CONCLUSIONS

From adopting to establishing and then committing to the Prosuming Project, the empirical evidence demonstrated the importance of practitioners actively "*mobilising*" [12] three elements - meanings, skills and materials - and "*orchestrating*"[13] social practices, such as laundering, alongside institutional and voluntary projects. In particular the empirical research highlighted the important role of two dominant institutional projects: 'Feeding-the-Meter' and 'Maintaining-Family-Routines', in making space for prosuming in the daily paths of busy families.

For many of the households in the study, prosuming was associated with affluent areas rather than a community in the top ten per cent most deprived areas in England. A number of them initially threw away the letter offering them free solar panels – they simply did not believe it. There was a lack of solar entitlement. However, what was striking was how quickly this changed. As panels appeared on roofs; knowledge became embodied; and friends shared solar stories, so the physical and social fabric of the estate began to change. Alongside this was a growing sense that solar power belonged here.

What also emerged over the ten months of the study was how households experimented, adapted and improvised [14] across the evolution of the Prosuming Project. In a short space of time, prosuming changed from being a project primarily associated with shifting energy demand to coincide with energy generation, to one that took on board saving energy alongside a desire to share solar power within the community.

The potential for a new 'Shifting-Storing-Saving & Sharing Energy' project was born – one that could held reduce fuel poverty in the future. However, for this to happen low-income communities need to be able to mobilise the necessary elements. Prosuming cannot happen

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[i] See https://www.youtube.com/watch?v=Ew1aYAzRIz0

without the material element of solar panels but also, in the absence of suitable batteries, the skills needed to use the solar power as it is being generated. However, what this study has highlighted is also the importance of the third element: the meanings associated with prosuming. In other words, to increase a sense of solar entitlement, a future Prosuming Project needs to transform from being associated with affluent homeowners living in "posh" areas, to also include tenants living in disadvantaged communities. The last words are left to 'Frankie' who, given the opportunity, would love to adopt a future 'Shifting-Saving-Storing & Sharing' Project:

> *It's good for a community… the solar panels…No one's going to complain about free electricity are they? … I think everybody would really like that, if I weren't in and [the electricity] was going to waste then I could send it to them [even if] I don't even know them … I'm sure they'd be grateful for it…Might make a new friend, you never know!*

Acknowledgements

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