



Smart Energy Services to Improve Energy Efficiency in the European Building Stock

Experience and lessons learnt from P4P pilots

Marion Santini, The Regulatory Assistance Project




This project has received funding from the **European Union's Horizon 2020 Research and Innovation programme** under Grant Agreement No **847066**





SENSEI AND P4P

- SENSEI project explores the potential of Pay-for-Performance (P4P) schemes for financing energy efficiency



sensei

Experience and lessons
learned from P4P pilots
for energy efficiency



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EFFICIENT BUILDINGS IN THE EU'S DECARBONISATION



a 3% annual renovation rate
(currently 0.2-0.3% deep renovations)



electrified buildings to serve as a flexible
energy system resource

How can we

- ⊗ increase the impact of buildings energy efficiency policies?
- ⊗ reward buildings for providing energy system services?

REVIEW OF INTERNATIONAL EXPERIENCE WITH P4P

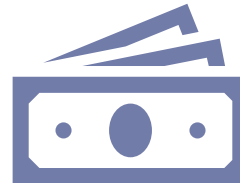
Large commercial buildings		
NJBPU	NJ	US
Energy Trust of Oregon	OR	US
DCSEU	DC	US
Seattle City Light	WA	US
Puget Sound	WA	US
Efficiency Vermont	VT	US
IESO	ON	CA
Small commercial buildings		
NYSERDA	NY	US
BayREN	CA	US
Residential buildings		
PG&E	CA	US
Open programmes		
BMW/BAFA	DE	DE

- Report reviews 11 case studies
- Mainly in North America
- Public authority, system operator or utility
- Often in the context of an energy efficiency obligation
- Large majority target large commercial buildings

TRADITIONAL SUBSIDY SCHEME



Deemed savings
(assumption about
impact of measure)



One-off payment
(usually upon
installation)

PAY-FOR-PERFORMANCE SCHEME

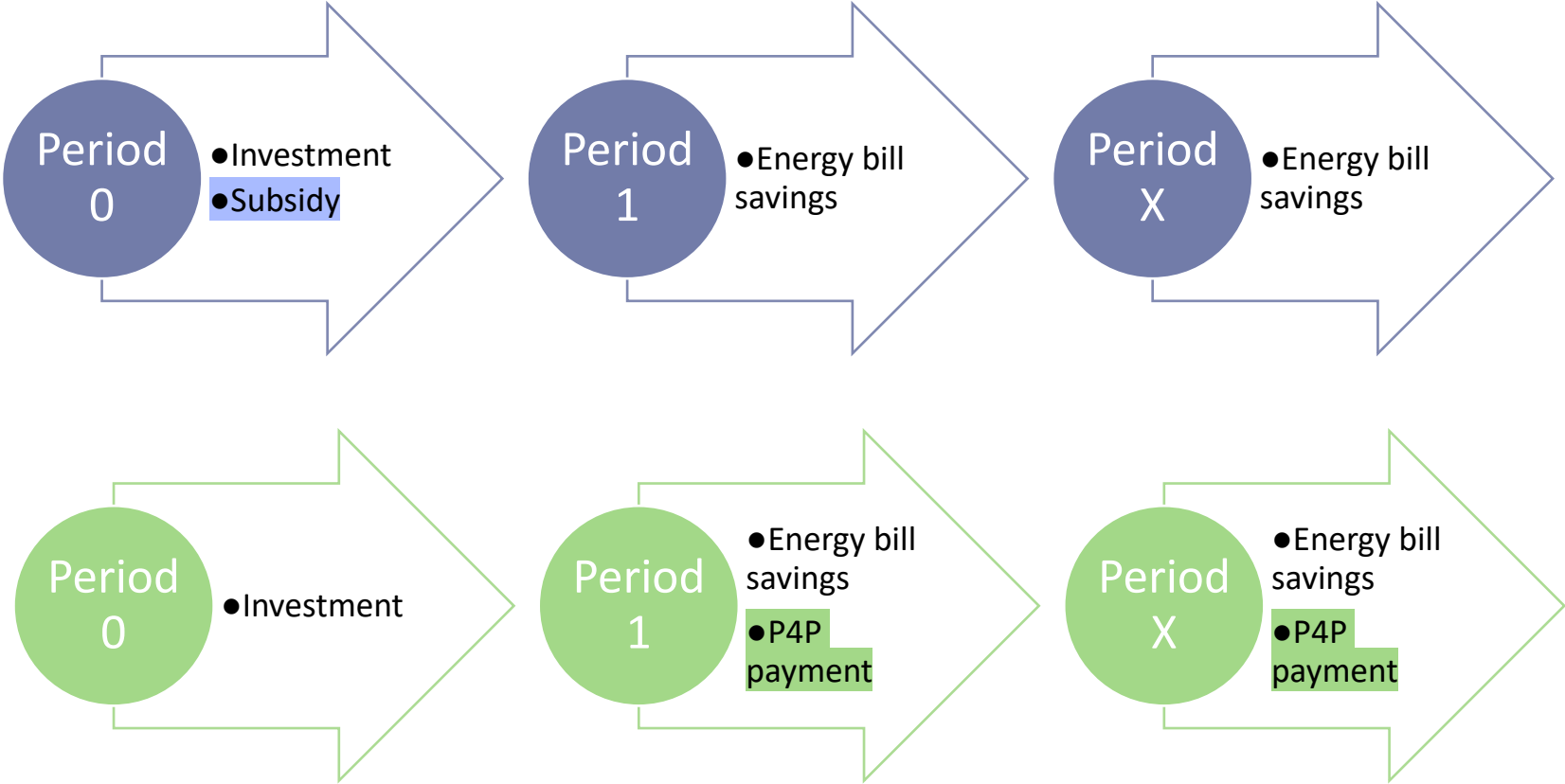


Savings established
by comparing
metered energy
consumption to
baseline



Payment
proportional to
energy saved,
delivered “as the
savings occur”

CASH FLOWS: TRADITIONAL SUBSIDY VS. P4P



With P4P:

- ⌘ Payment delayed
- ⌘ Performance risk shifted

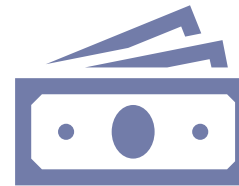


REVIEW OF P4P PERFORMANCE AND PAYMENT STRUCTURES



Performance

- ✖ Flexible eligibility rules
- ✖ Often using smart meters to collect data before and after measure
- ✖ End-beneficiary and/or aggregator rewarded



Payments

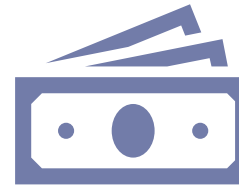
- ✖ Proportional to energy saved
- ✖ Often twined with grant
- ✖ Price set in advance or result of bids
- ✖ Often bonus for certain measures
- ✖ Over 1 to 5 years

EXAMPLE: PACIFIC GAS AND ELECTRIC (PG&E) RESIDENTIAL P4P



Performance

- ✖ Residential sector in California
- ✖ Aggregators
- ✖ Rewarded based on portfolio performance
- ✖ CalTRACK method

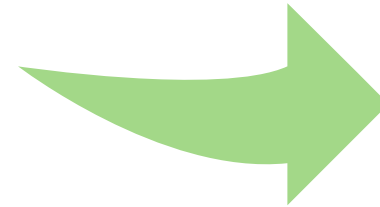


Payments

- ✖ 100% proportional to energy saved
- ✖ Prices per kWh and therm result from bids
- ✖ Monthly
- ✖ Over 2 years
- ✖ Prices based on expected lifetimes of measures

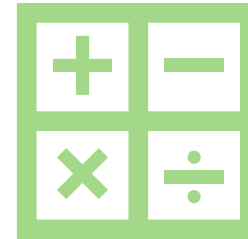
RECOMMENDATIONS FOR EU ROLL OUT (1)

- ✦ Begin piloting P4P programmes now
- ✦ Start small and build upon experience
- ✦ Integrate well with broader climate and energy objectives



RECOMMENDATIONS FOR EU ROLL OUT (2)

- ✦ Focus on clear, precise and detailed measurement rules
- ✦ Accelerate smart meter rollout



RECOMMENDATIONS FOR EU ROLL OUT (3)

- ✦ Adapt payment structures to market conditions
- ✦ Involve stakeholders in programme development and communicate clearly to target audiences
- ✦ Publish evaluation results and share knowledge




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Thank you!

<https://senseih2020.eu/>



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