

Nonintrusive Load Monitoring (NILM): What an algorithm can tell you about your energy consumption

Stephen Makonin, PhD Candidate
Computing Science, Simon Fraser University
Applied Research, British Columbia Institute of Technology

PREFACE

This poster was displayed at the 2014 IEEE Vancouver Section Annual General Meeting Poster Session held on March 29, 2014. Attached to the poster is a cover that hides the NILM disaggregation chart of appliances (see poster 1). The poster was laminated so that the smart meter data chart could be marked using dry erase markers. Once the audience members finished trying to guess what appliances turned ON/OFF and when, they could open the cover to view the NILM chart (poster 2). The audience members could then compare the marked-up smart meter data chart to the NILM chart.

Keywords: load disaggregation, appliance, smart meter, energy conservation

CITATION

To cite as a reference use the following BibTeX entry:

```
@conference{makonin2014vanagm,  
Author = {Stephen Makonin},  
Booktitle = {Poster Session at IEEE Vancouver Section Annual General Meeting},  
Title = {{Nonintrusive Load Monitoring (NILM): What an algorithm can tell you about your  
energy consumption}},  
Year = {2014}}
```

Nonintrusive Load Monitoring (NILM)

SFU

What an algorithm can tell you about your energy consumption

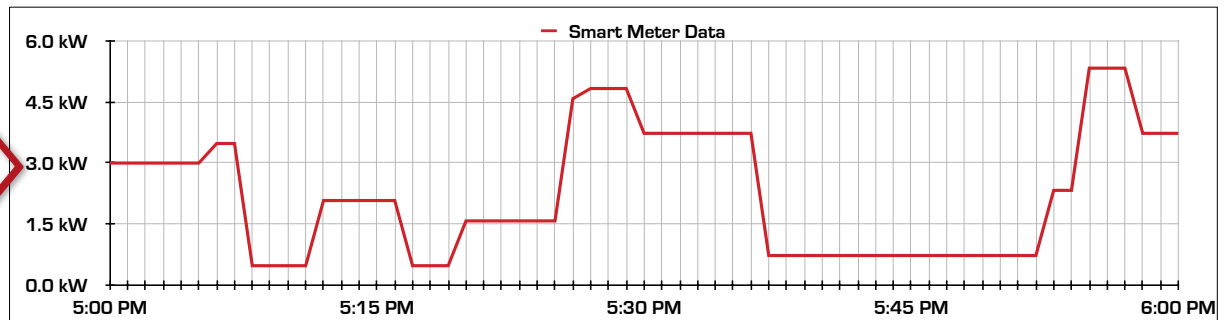
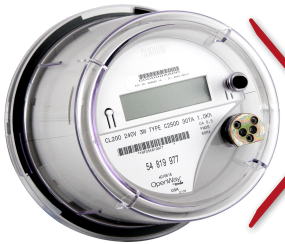
Stephen Makonin
smakonin@sfu.ca

1 hour in the life of a homeowner . . .

Our homeowner lives in Vancouver in a small 400 sq ft studio suite. It still gets cold outside so the heating occasionally turns on. Sunset is around 5:10pm. Before starting to cook dinner, she makes a cup of tea. On TV, local news starts at 5:30pm for a half-hour and she usually eats dinner while watching. Towards the end of the local news she likes to have another cup of tea.

Appliance	Power	Description
Lights	480 W	8, Incandescent 60W Bulbs
Ent/TV	250 W	Panasonic 50" Plasma TV
Heating	3.0 kW	2, Cadet 1500W Baseboard
Microwave	1.1 kW	Panasonic Convection
Kettle	1.6 kW	Cuisinart Cordless 1.7L

Can you guess what appliances turned ON/OFF and WHEN?



papers,
details,
and more @

<http://nilm.ca>



When finished guessing, lift the tab.
See what **NILM** can do!

Copyright © 2014, by Stephen Makonin.

Nonintrusive Load Monitoring (NILM)

SFU

What an algorithm can tell you about your energy consumption

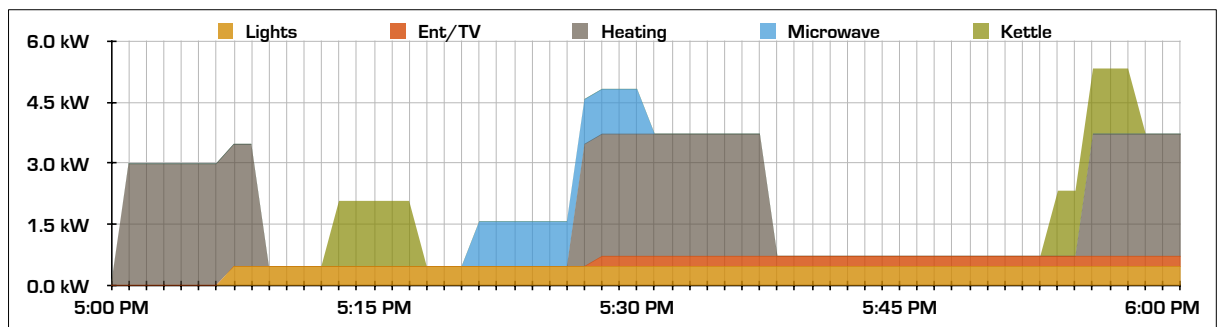
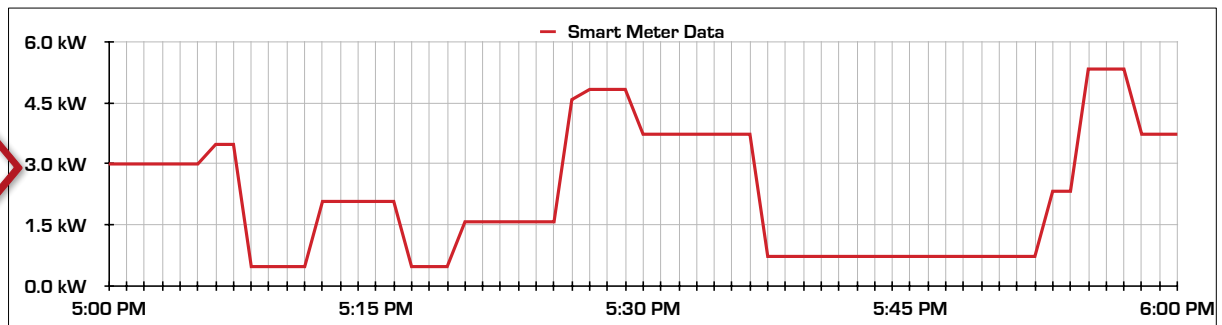
Stephen Makonin
smakonin@sfu.ca

1 hour in the life of a homeowner . . .

Our homeowner lives in Vancouver in a small 400 sq ft studio suite. It still gets cold outside so the heating occasionally turns on. Sunset is around 5:10pm. Before starting to cook dinner, she makes a cup of tea. On TV, local news starts at 5:30pm for a half-hour and she usually eats dinner while watching. Towards the end of the local news she likes to have another cup of tea.

Appliance	Power	Description
Lights	480 W	8, Incandescent 60W Bulbs
Ent/TV	250 W	Panasonic 50" Plasma TV
Heating	3.0 kW	2, Cadet 1500W Baseboard
Microwave	1.1 kW	Panasonic Convection
Kettle	1.6 kW	Cuisinart Cordless 1.7L

Can you guess what appliances turned ON/OFF and WHEN?



papers,
details,
and more @

<http://nilm.ca>



NILM** helps occupants by providing detailed information about appliance energy consumption without the purchase of additional expense sensors. The result, occupants can make **smarter energy conservation decisions in real-time.