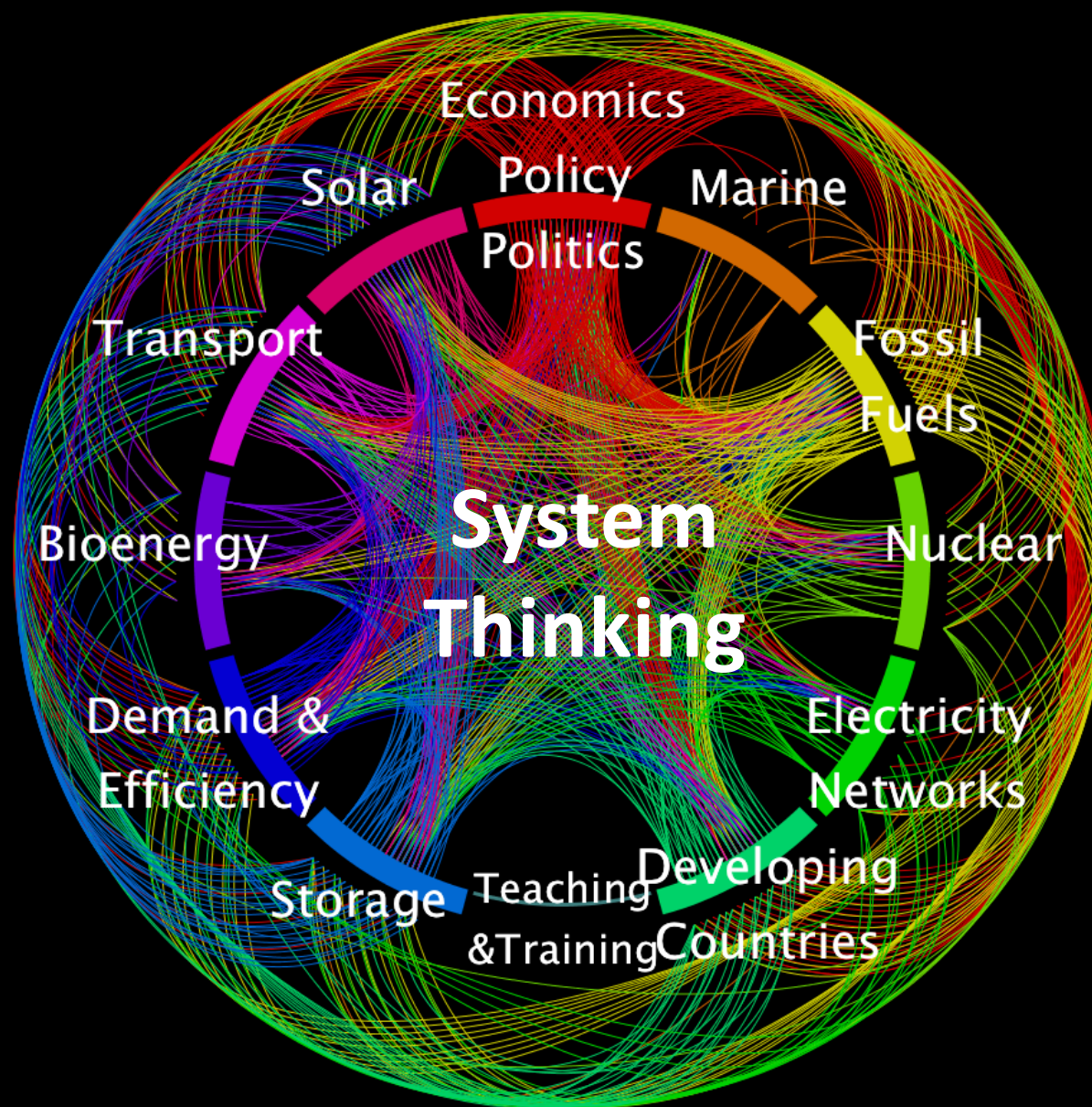


Energy use in lockdown



Oxford Energy Colloquium – 9 June 2020



Net-zero targets Contagious?

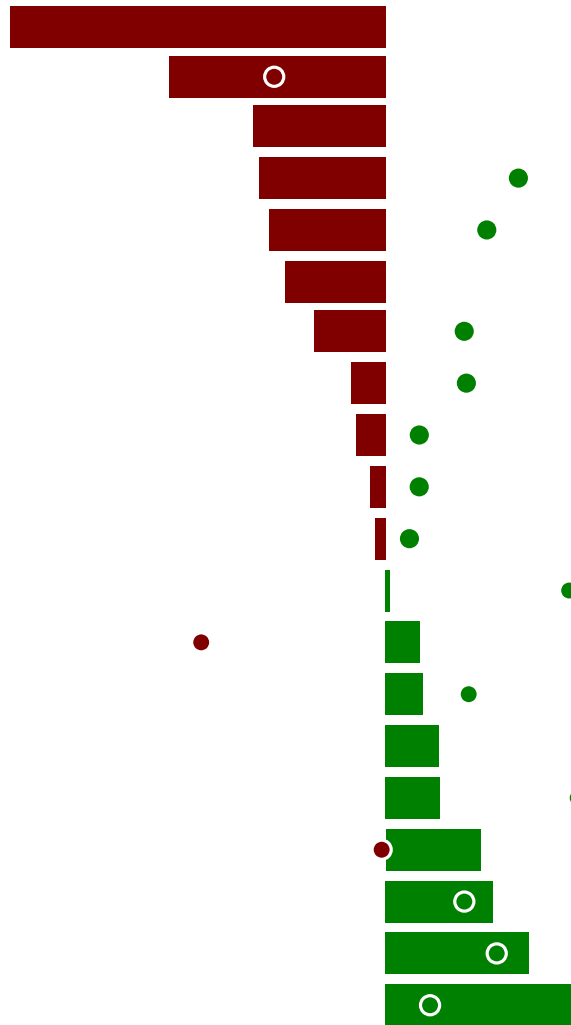
Law
Policy
Discussion

Source: <https://eciu.net/netzerotracker/map>

Energy Service



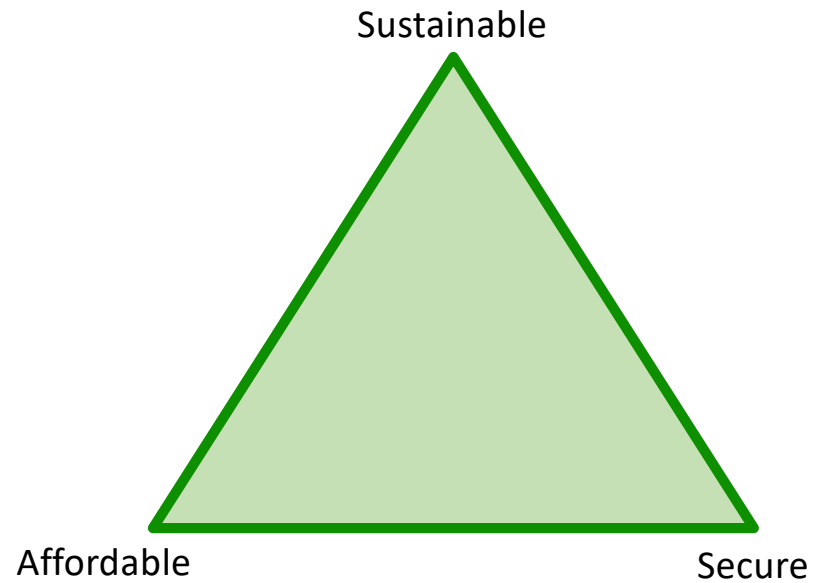
Lockdown



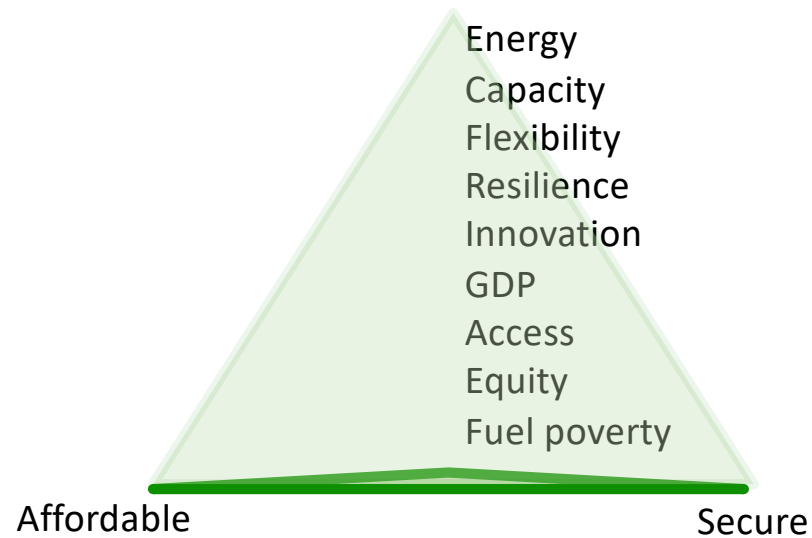
Future models



The trilemma is dead



The trilemma is dead



Life changes at Zero



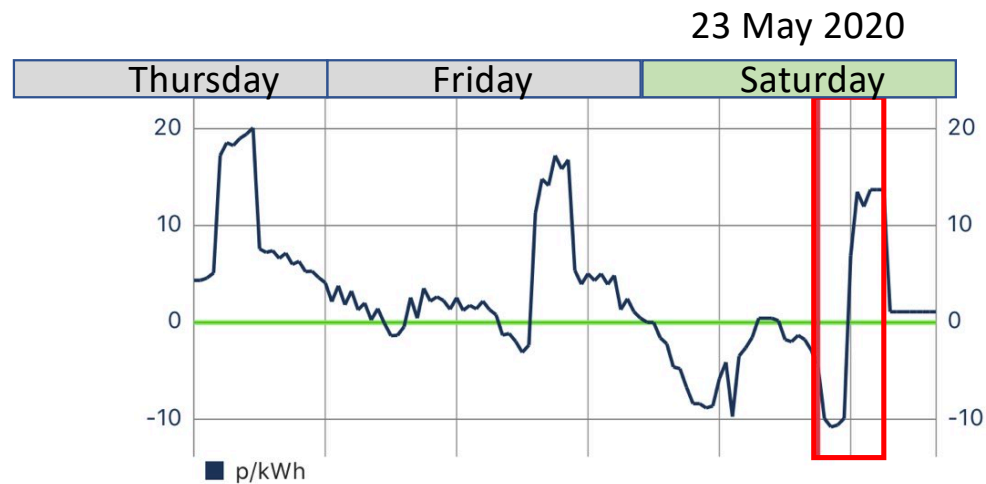
0

CO₂

% interest

£/kWh

Price and value of electricity



Source: <https://twitter.com/janrosenow/status/1264173114096848904>

Business model

Energy

Energy services

Product

kWh

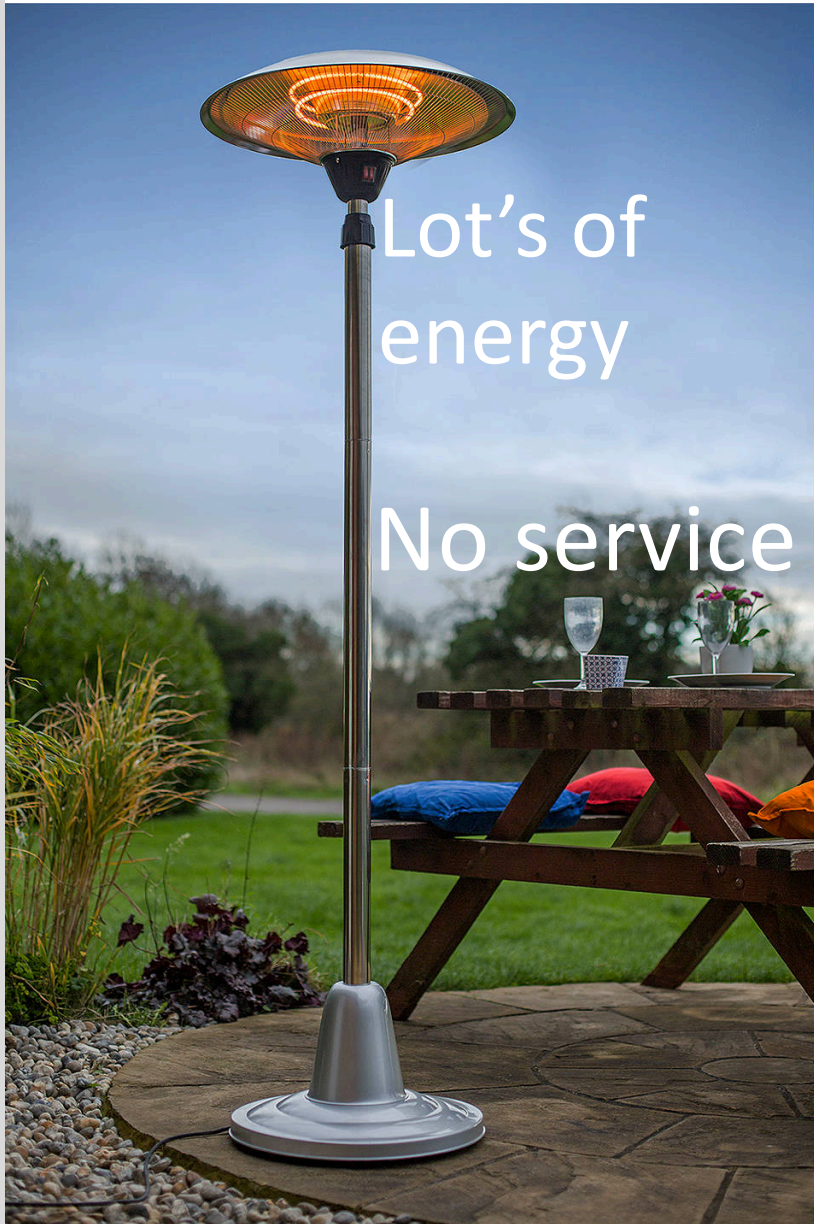
Information

Movement

Thermal comfort

Customer





We need energy services (not energy)



Energy

- is an intermediate good
- has no intrinsic value
- becomes **valuable** when converted to an **energy service**



We need energy services (not energy)



Energy

- is an intermediate good
- has no intrinsic value
- becomes **valuable** when converted to an **energy service**

£800,000
per MWh

What are our energy service needs?

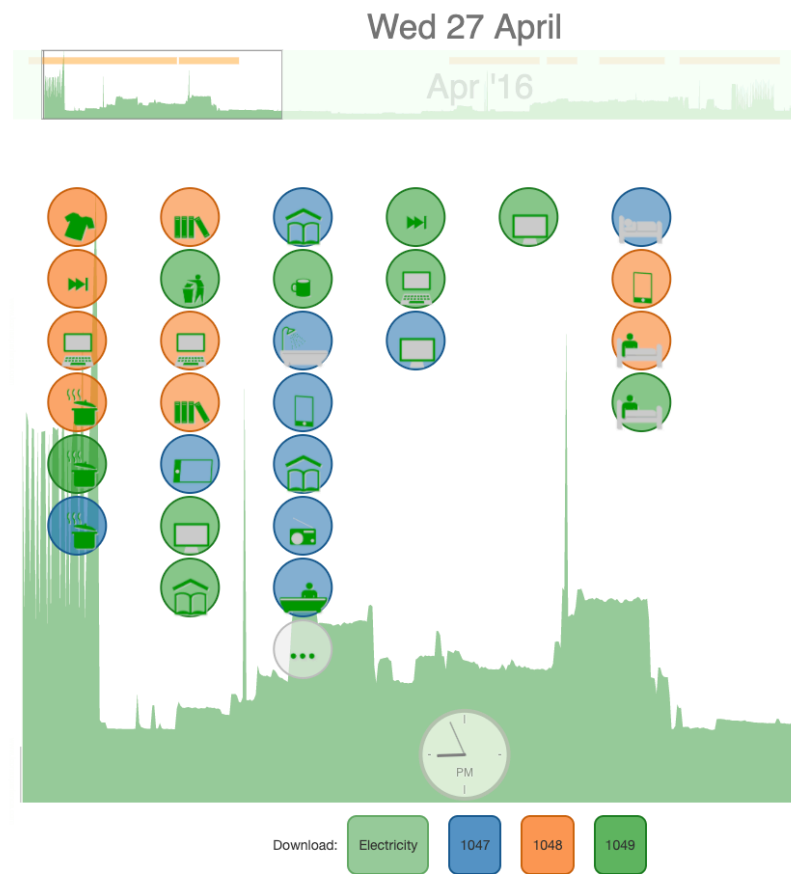
- Appliances cannot explain why they run
- People have distorted views themselves

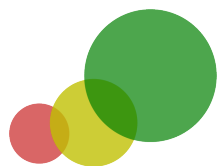


Activities



Electricity





Categories

JoyMeter.uk/data/categories.html

Food

Caring

Housework

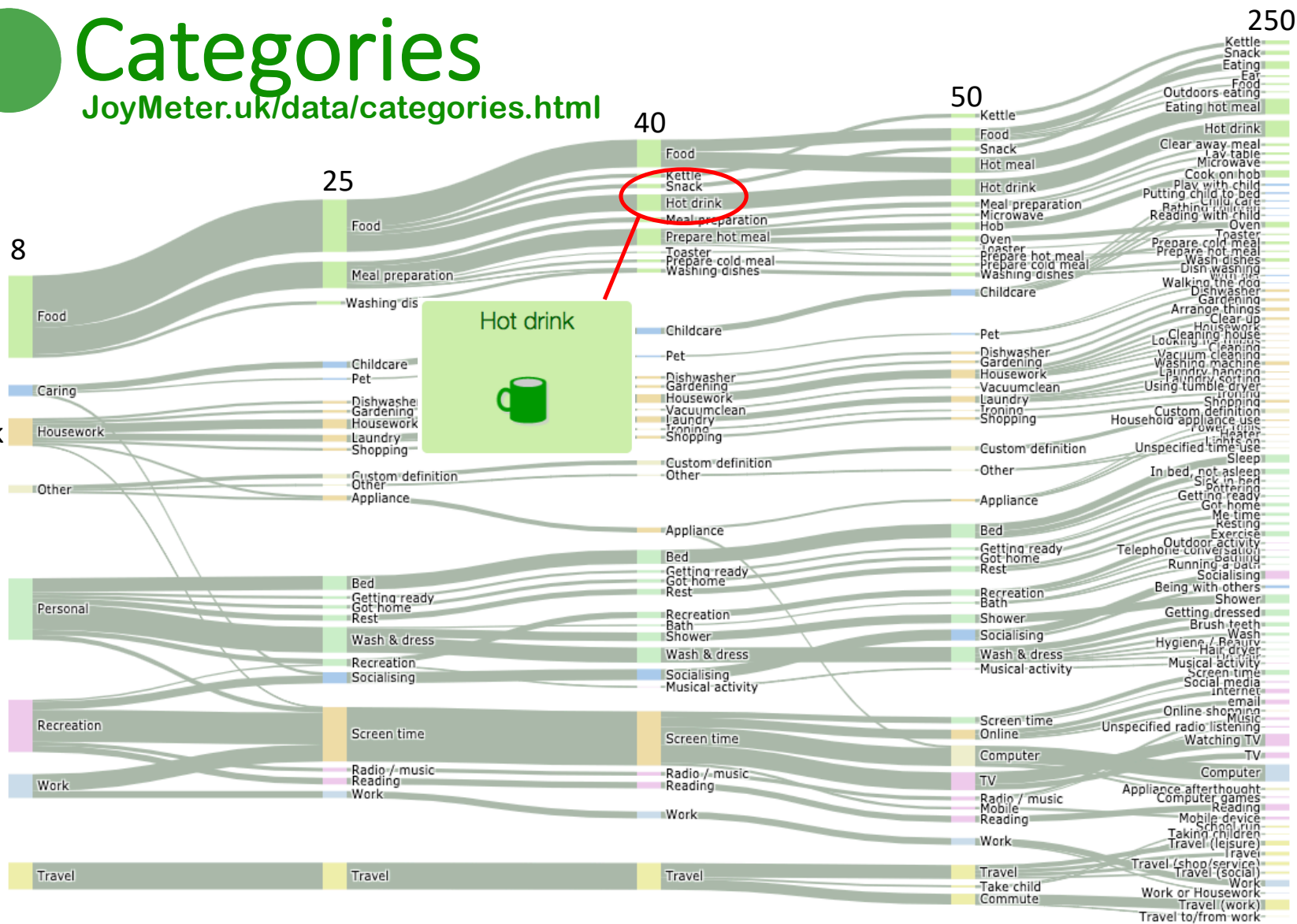
Other

Personal

Recreation

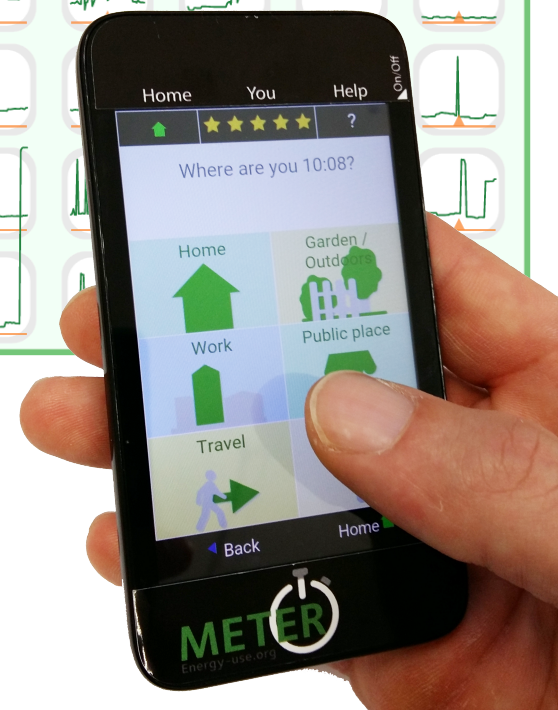
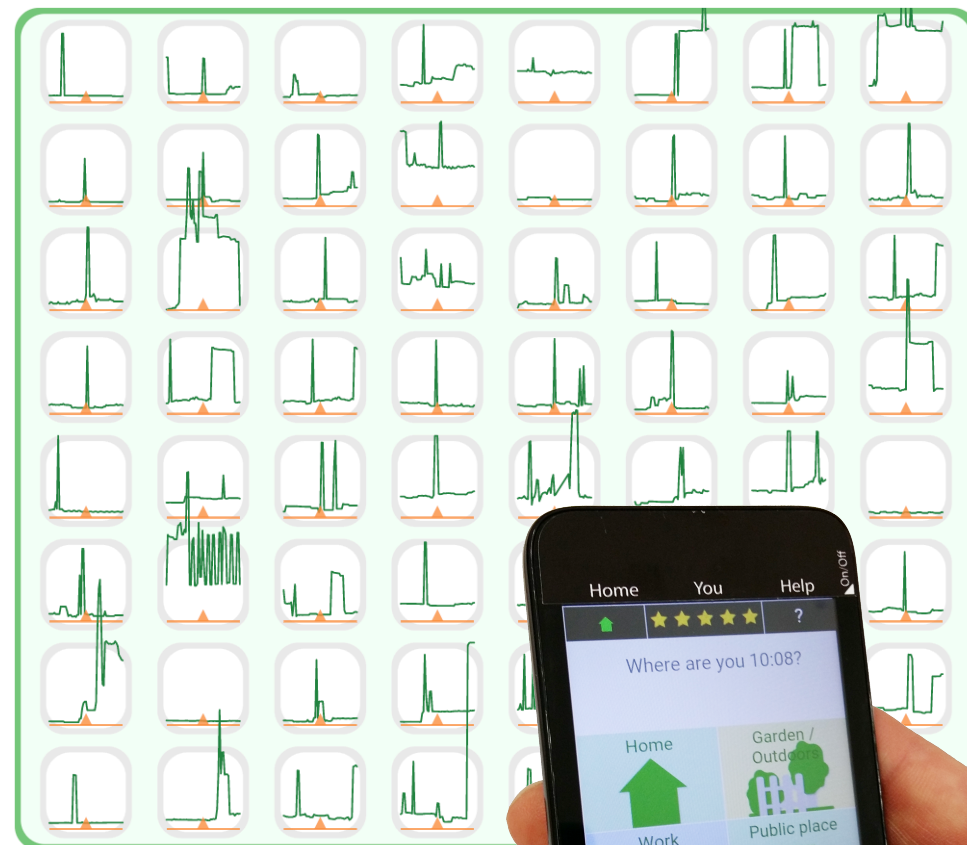
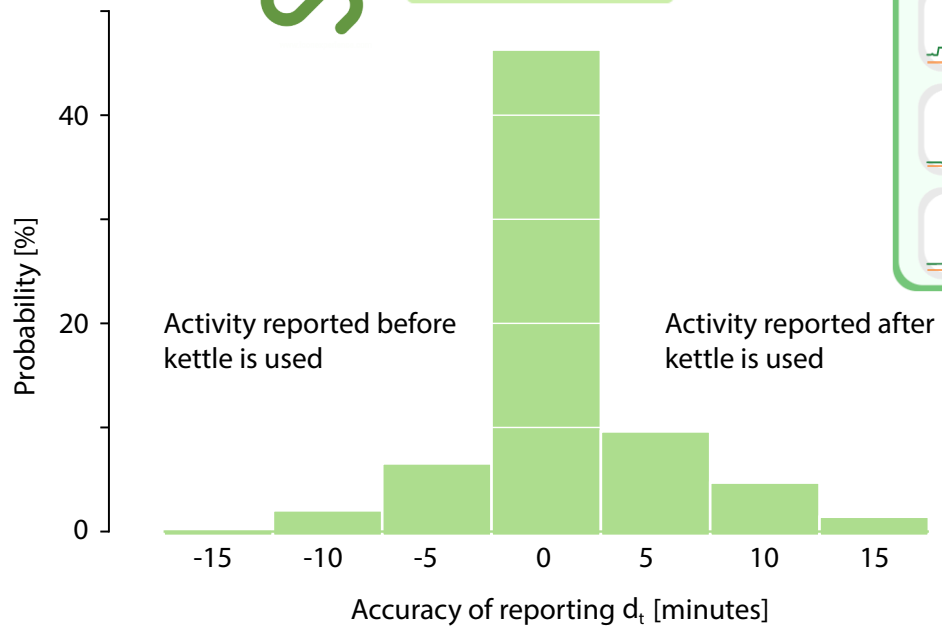
Work

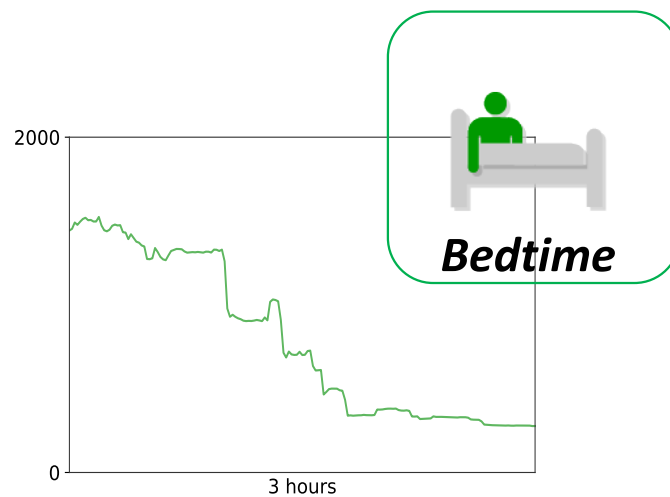
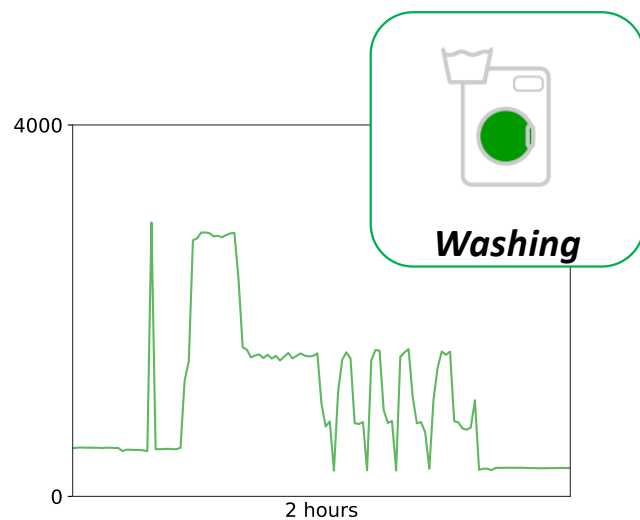
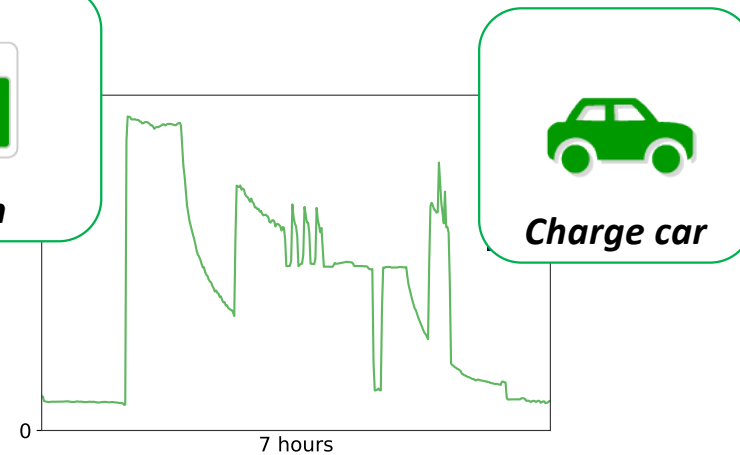
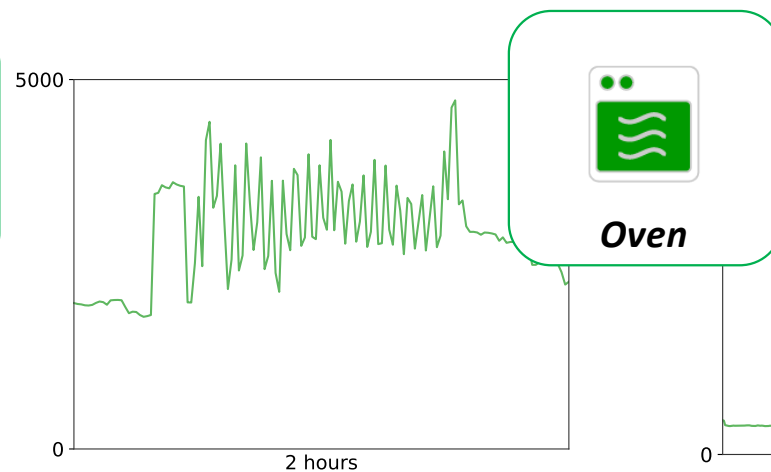
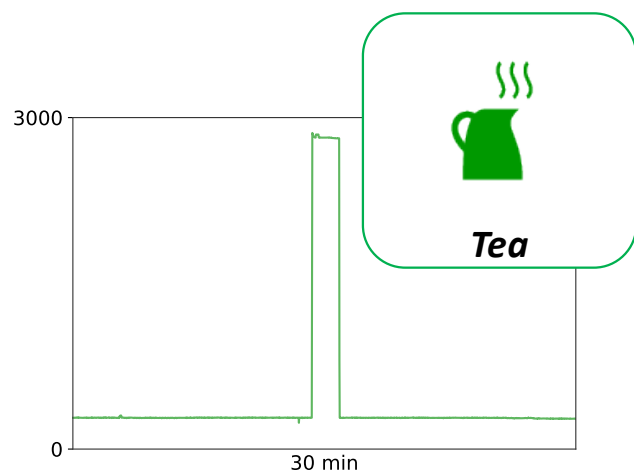
Travel

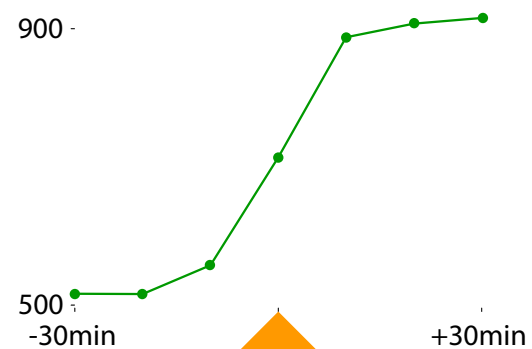
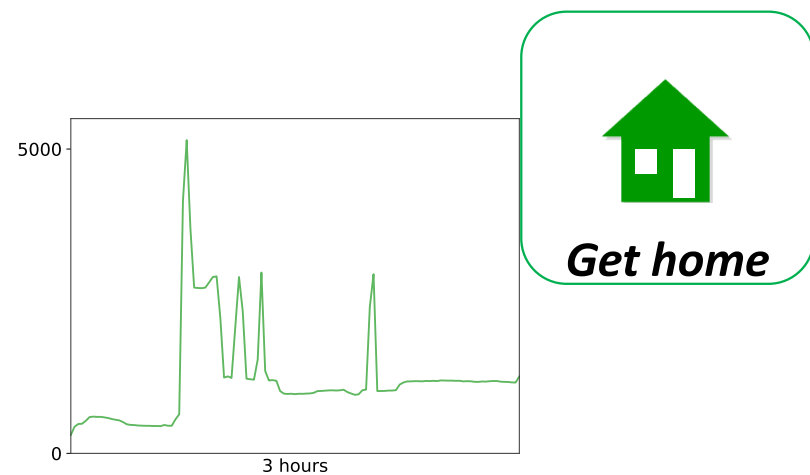
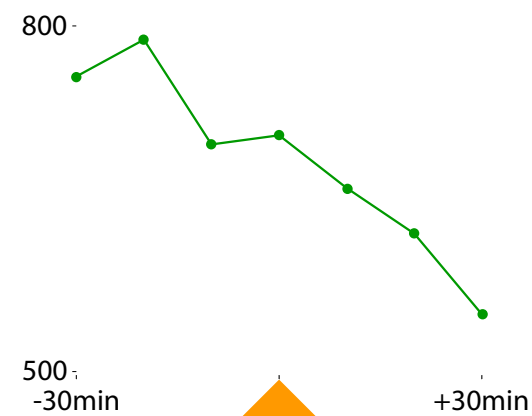
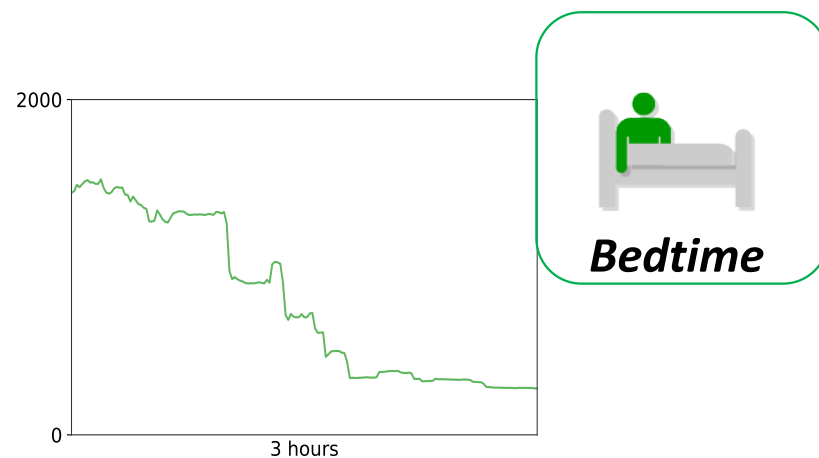


N=26392

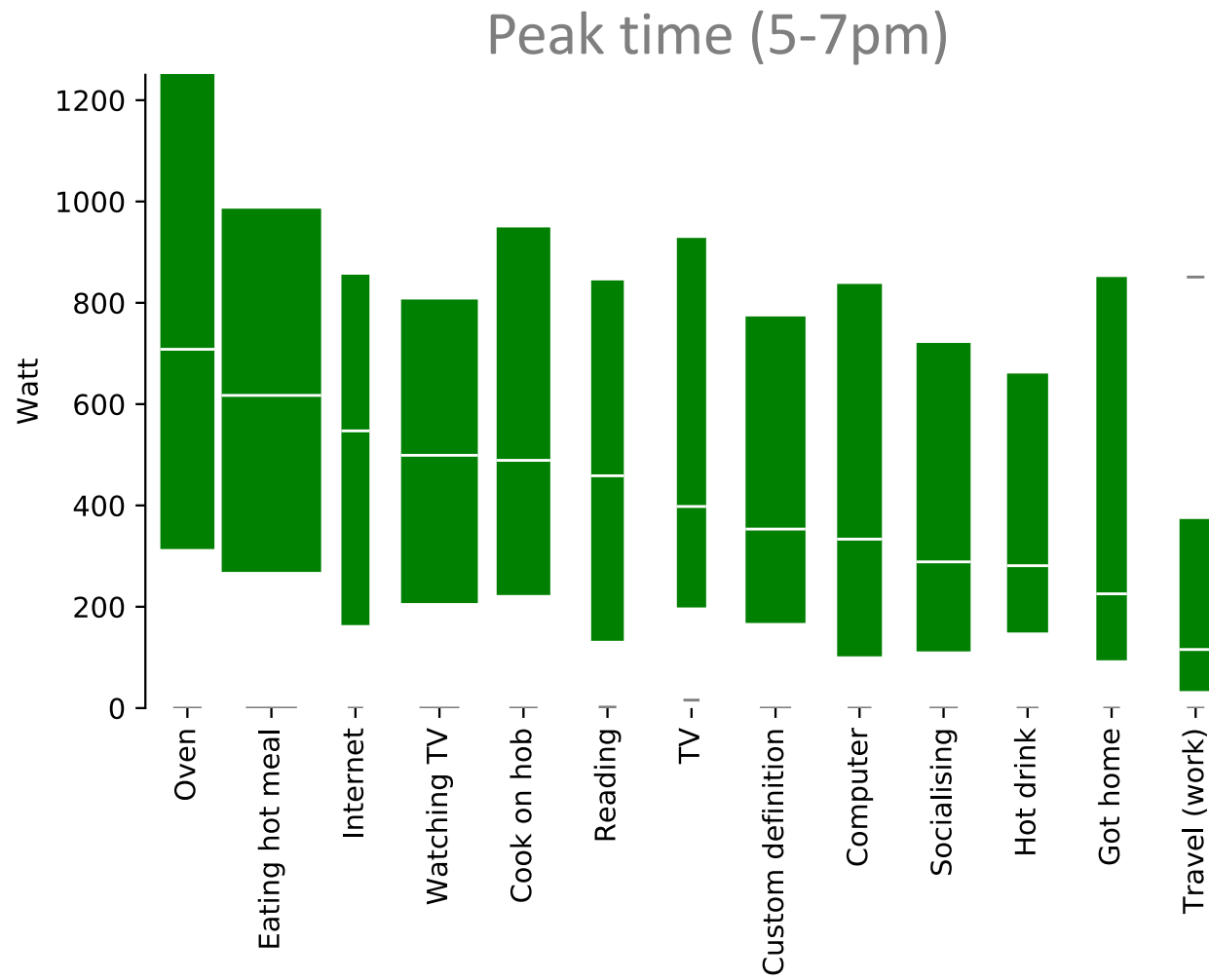
Tea-test



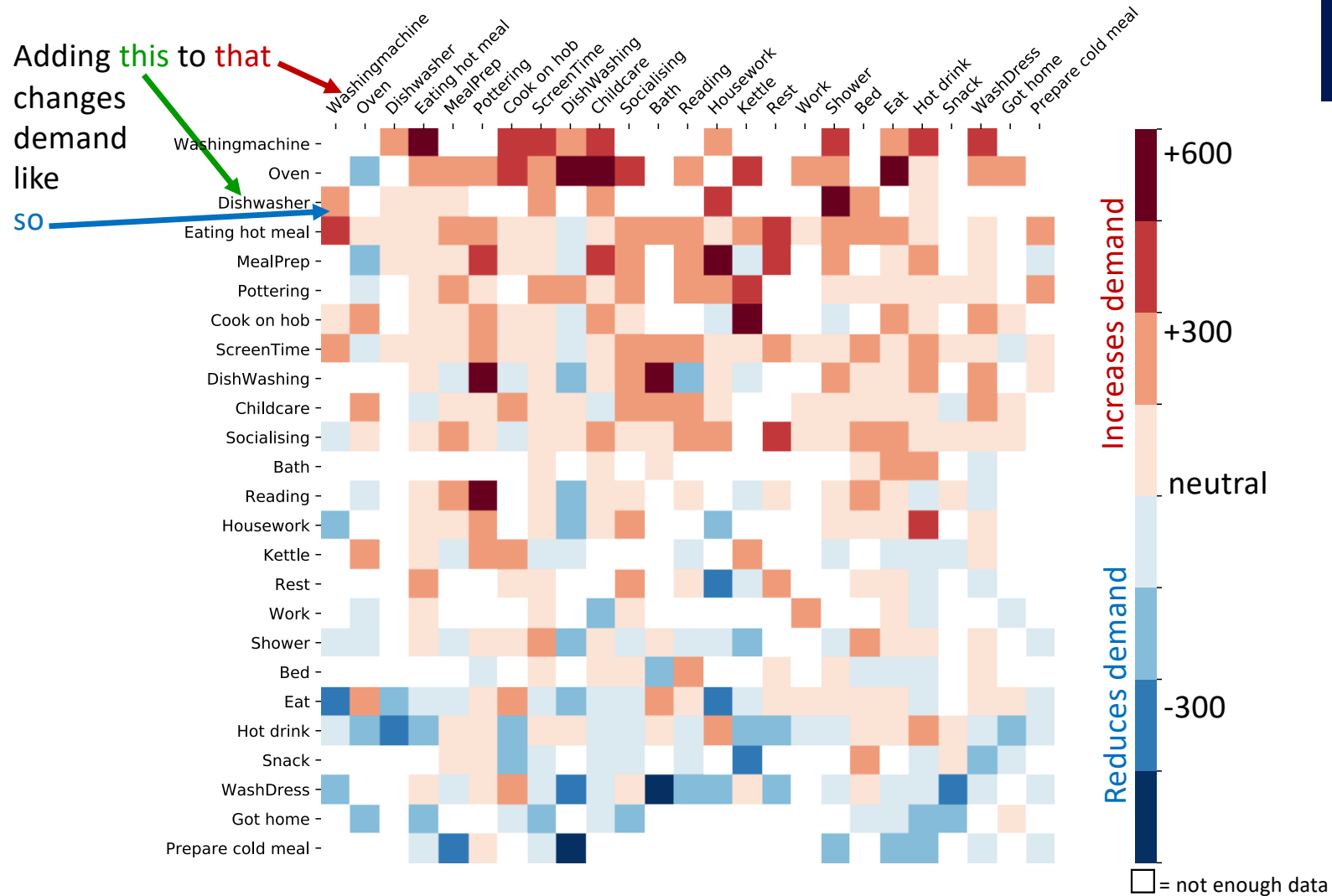




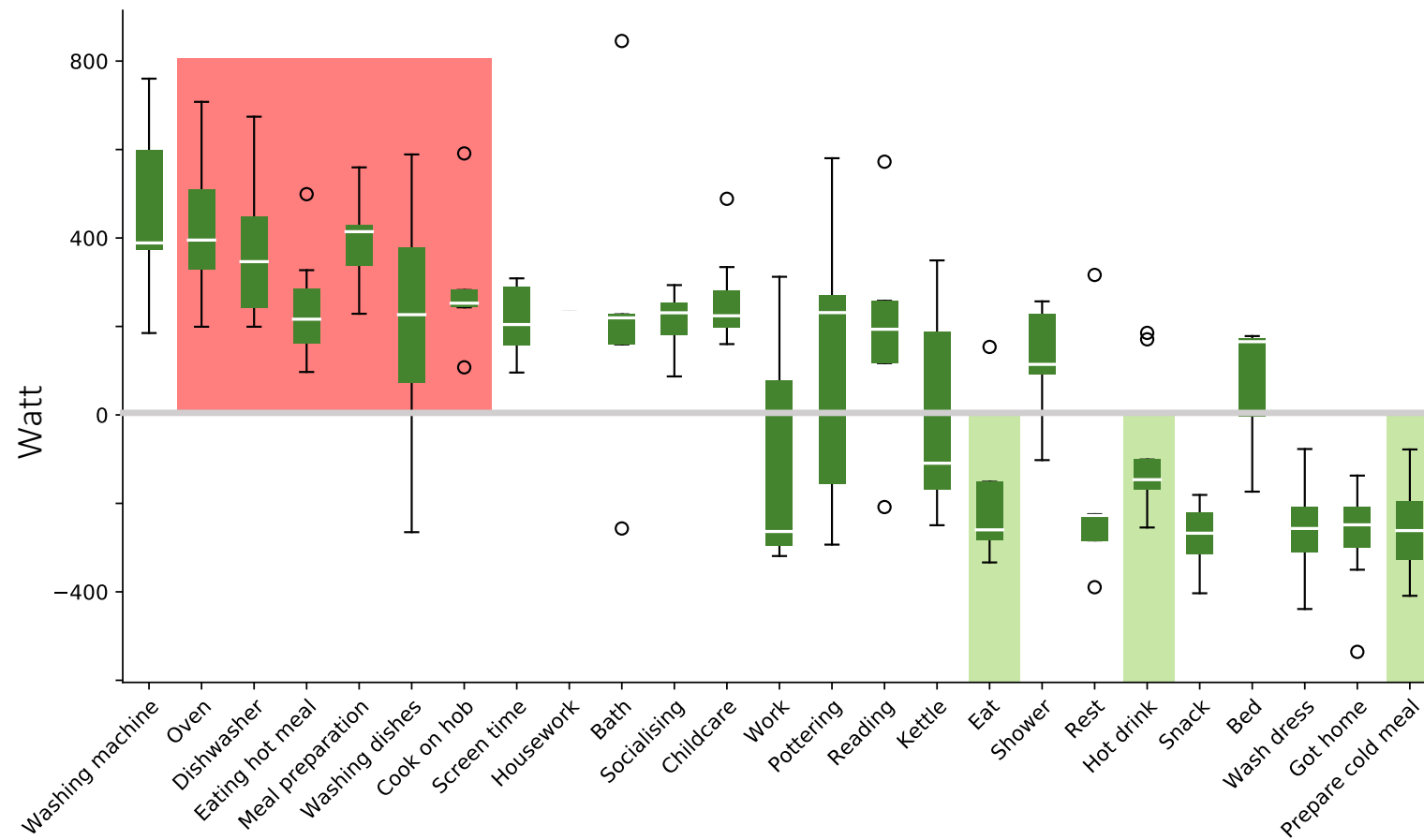
Power footprint of activities



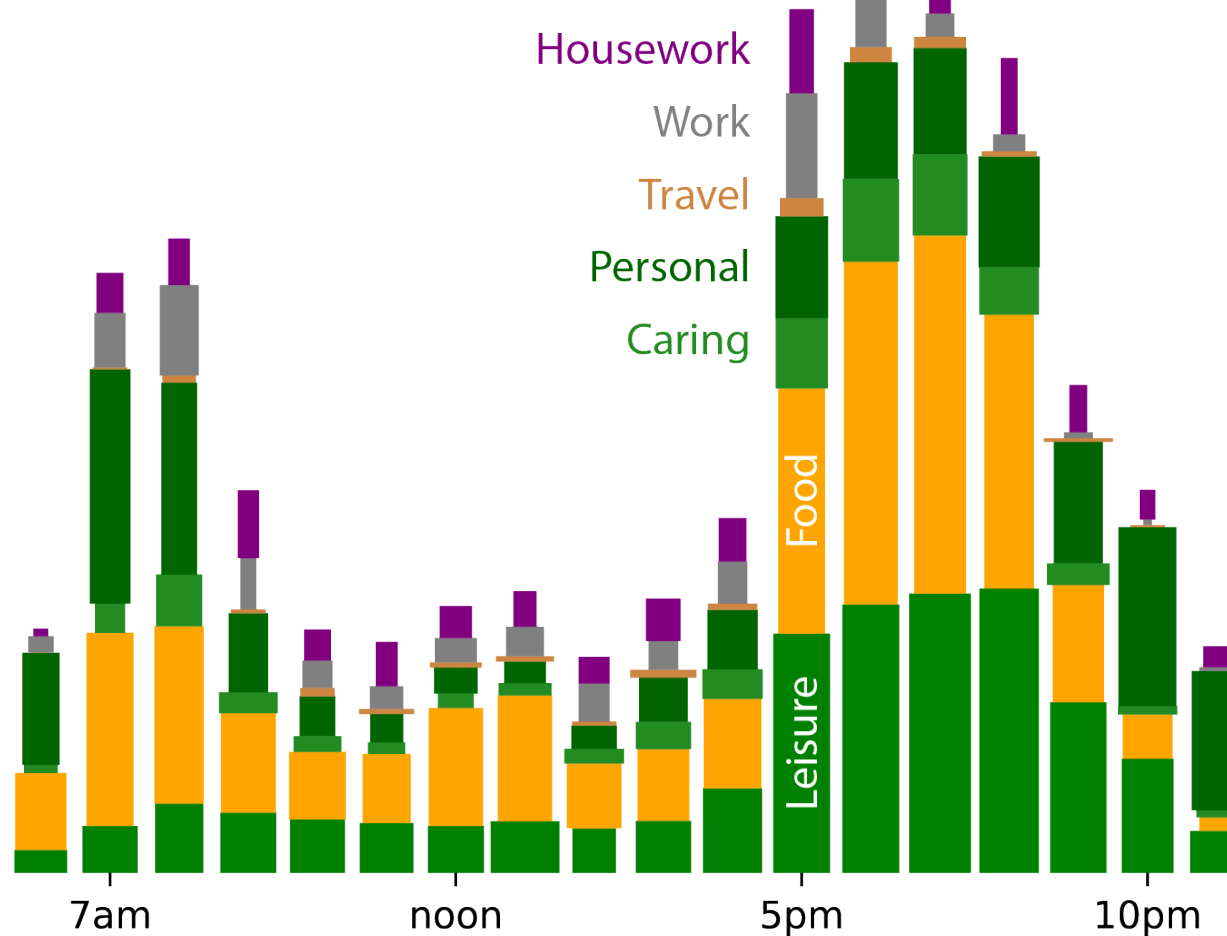
Marginal demand



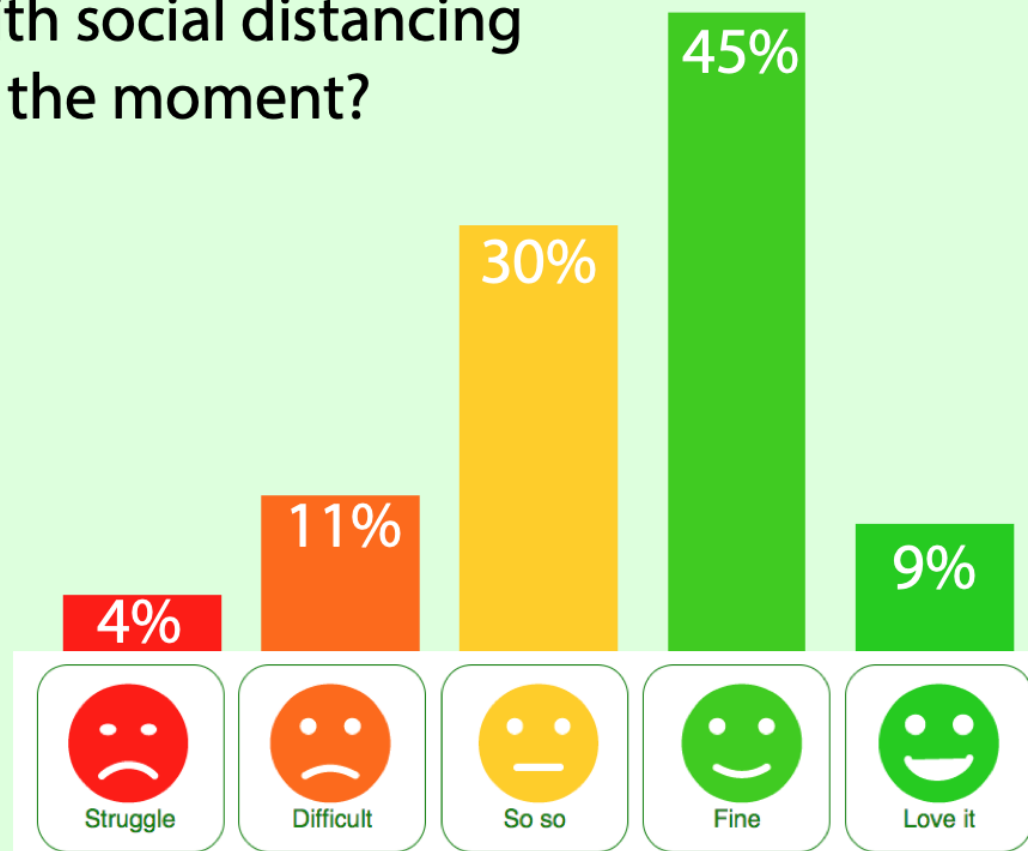
Marginal demand



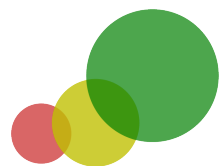
Life rhythm



How are you coping with social distancing at the moment?

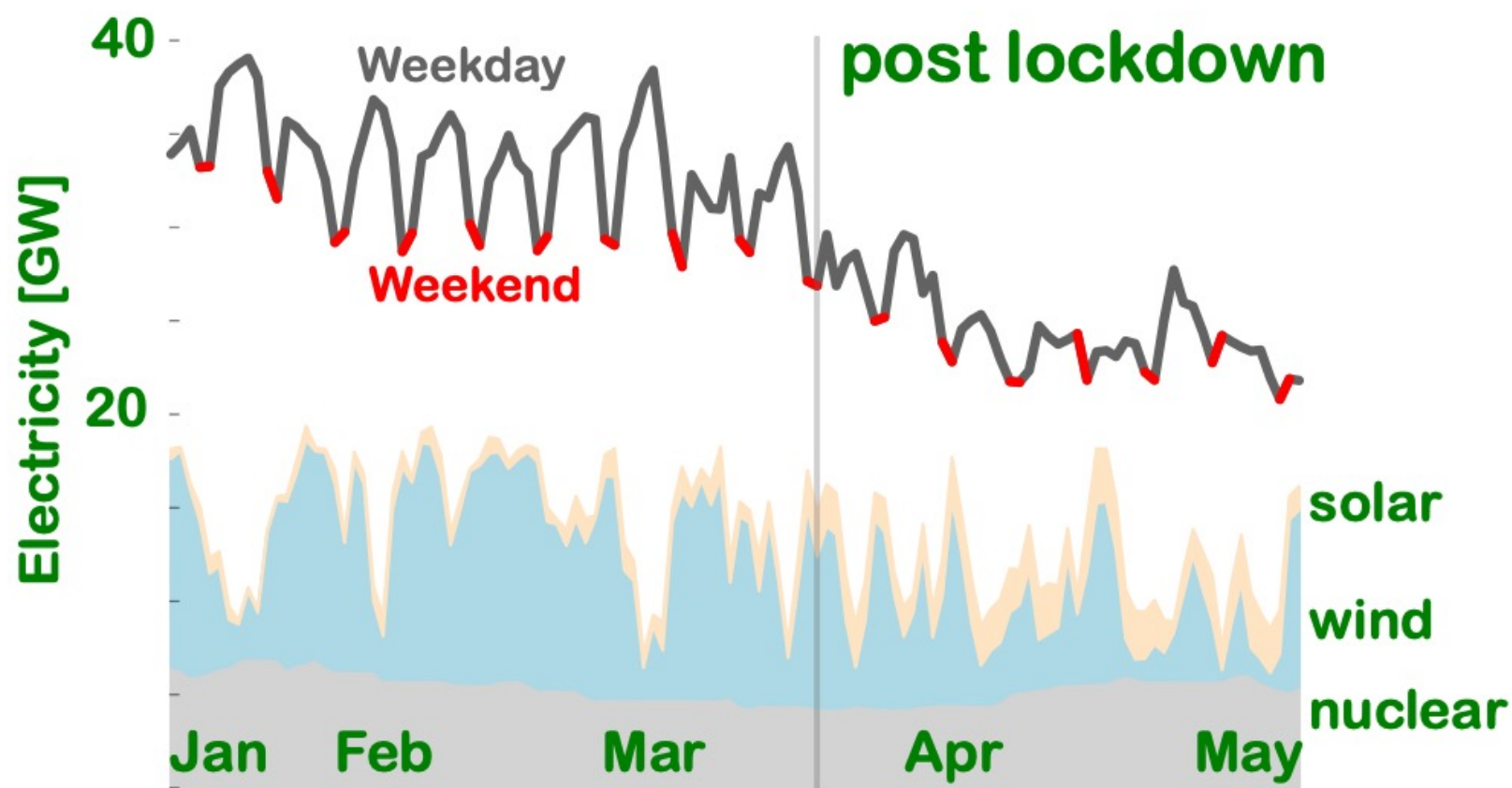


N=350



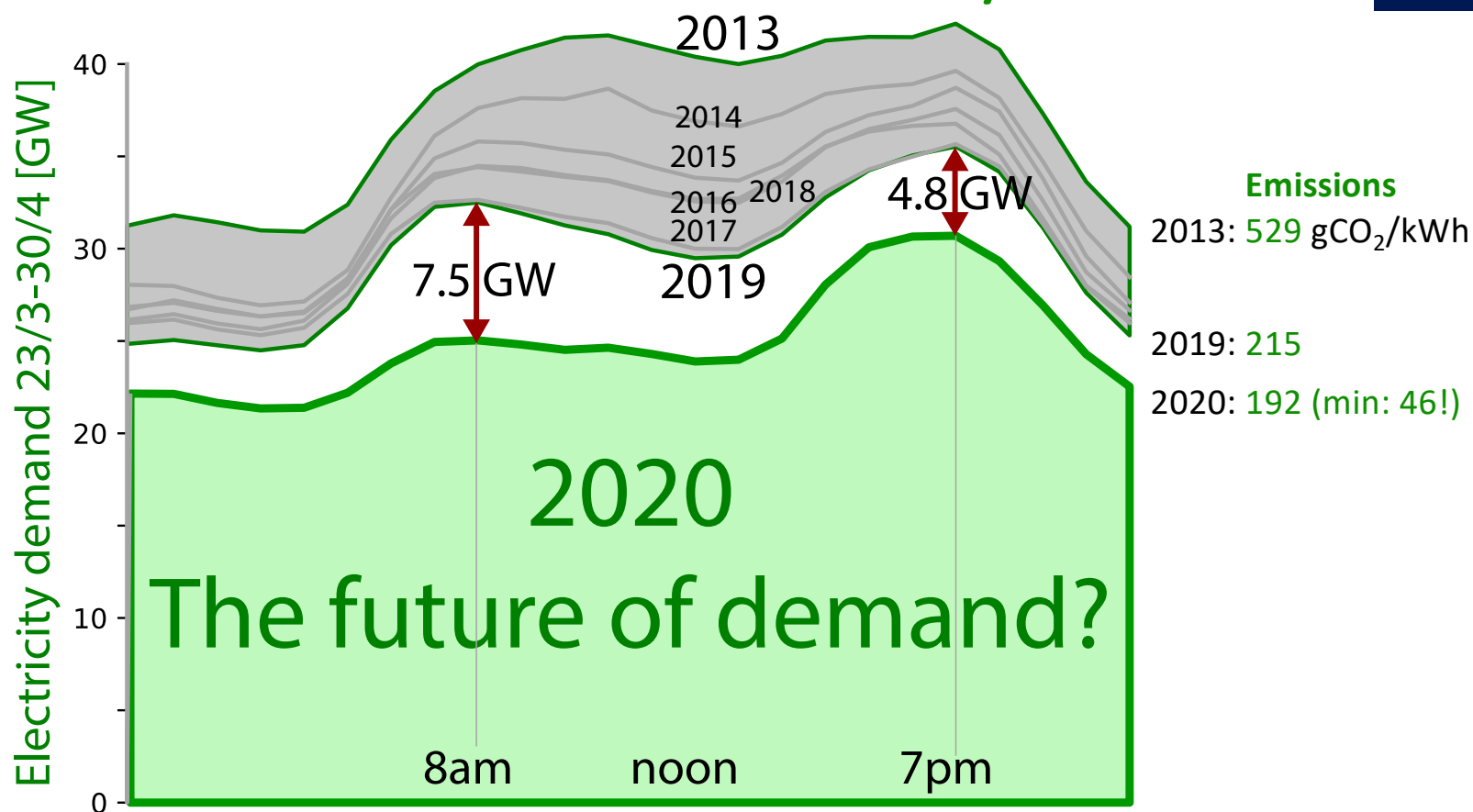
JoyMeter.uk

Change since lockdown



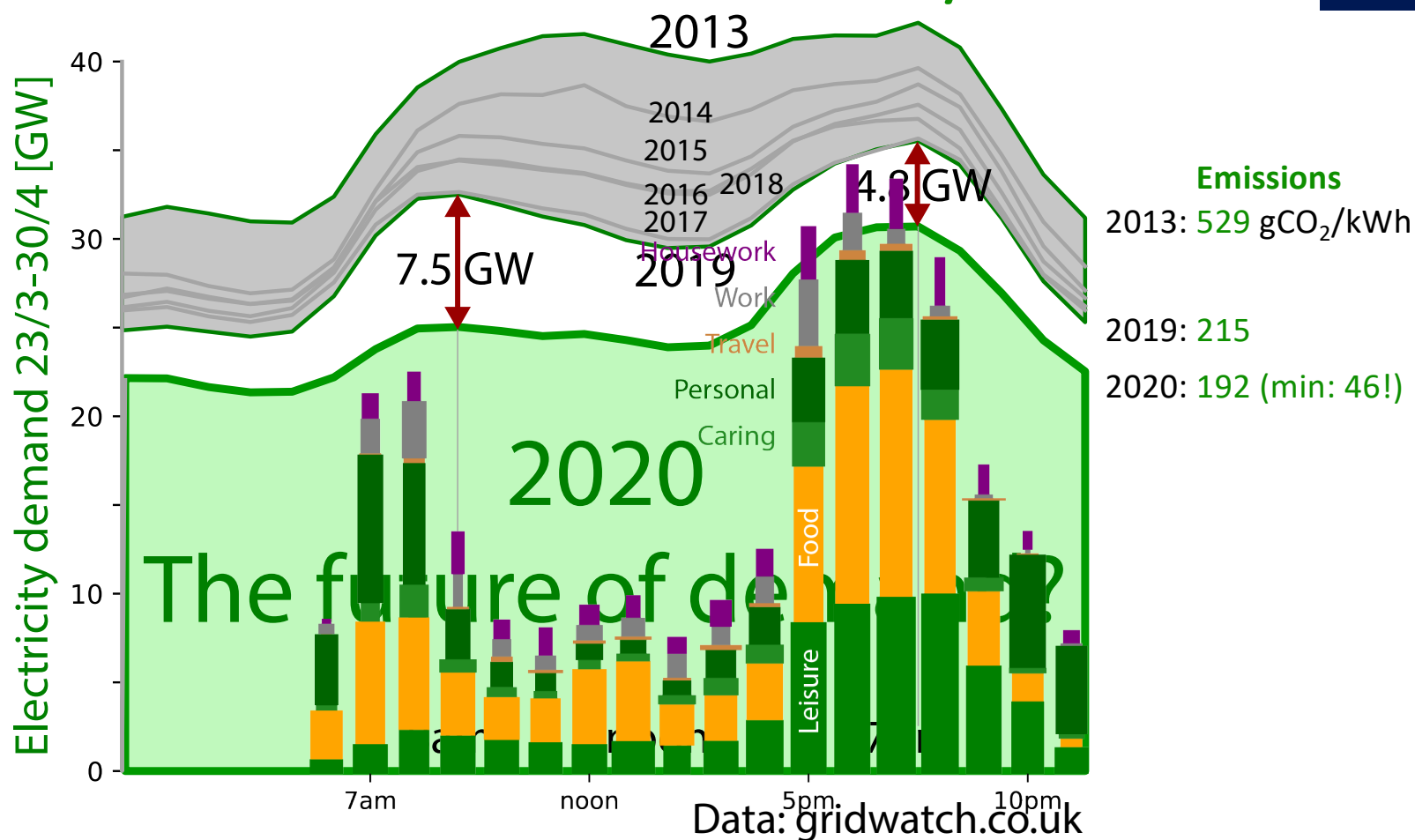
Data: gridwatch.co.uk

Demand reduction the unknown success story

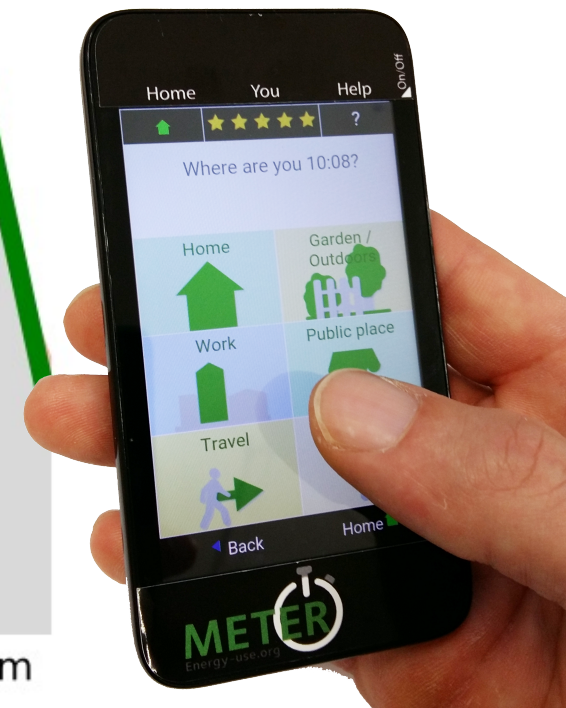
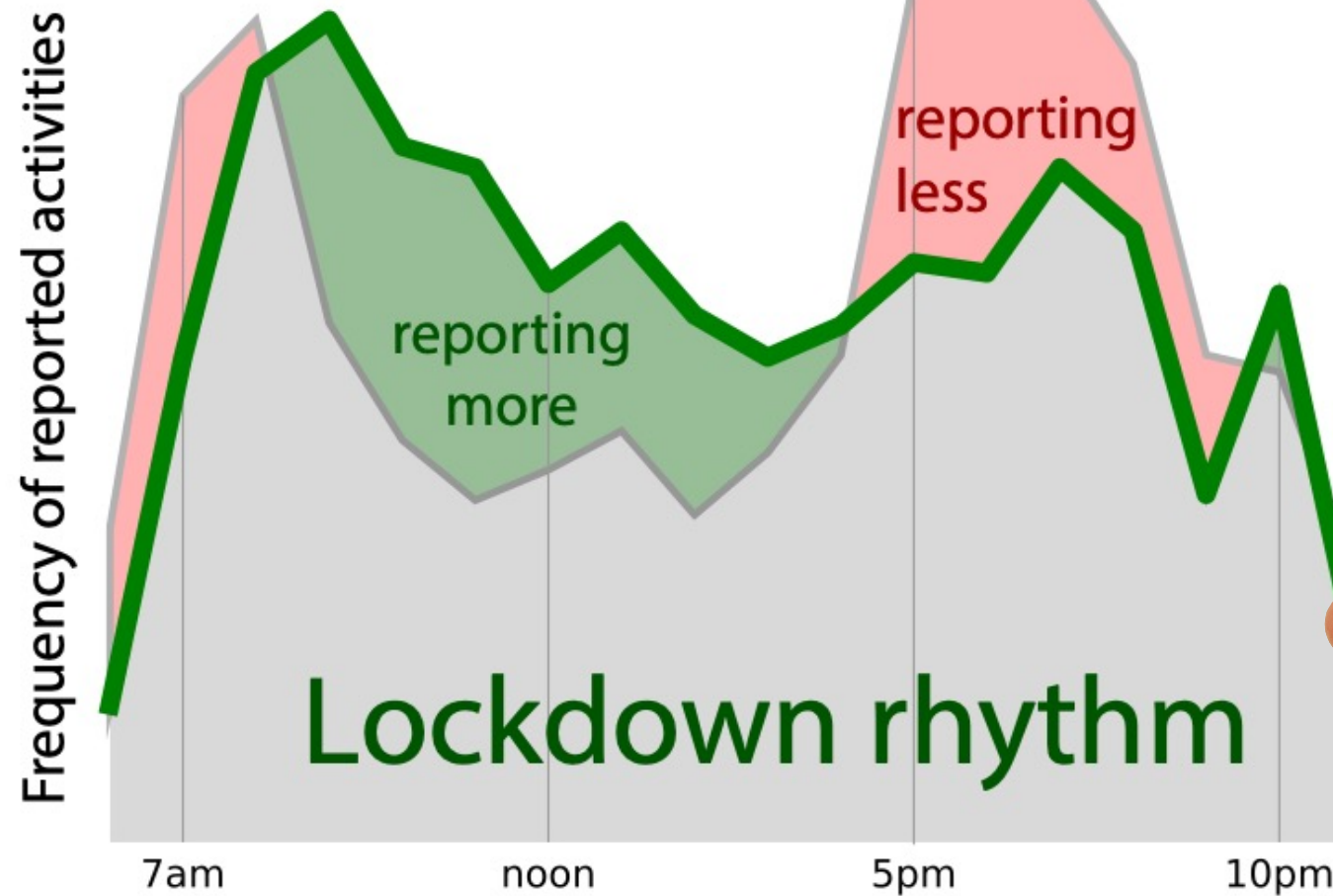


Data: gridwatch.co.uk

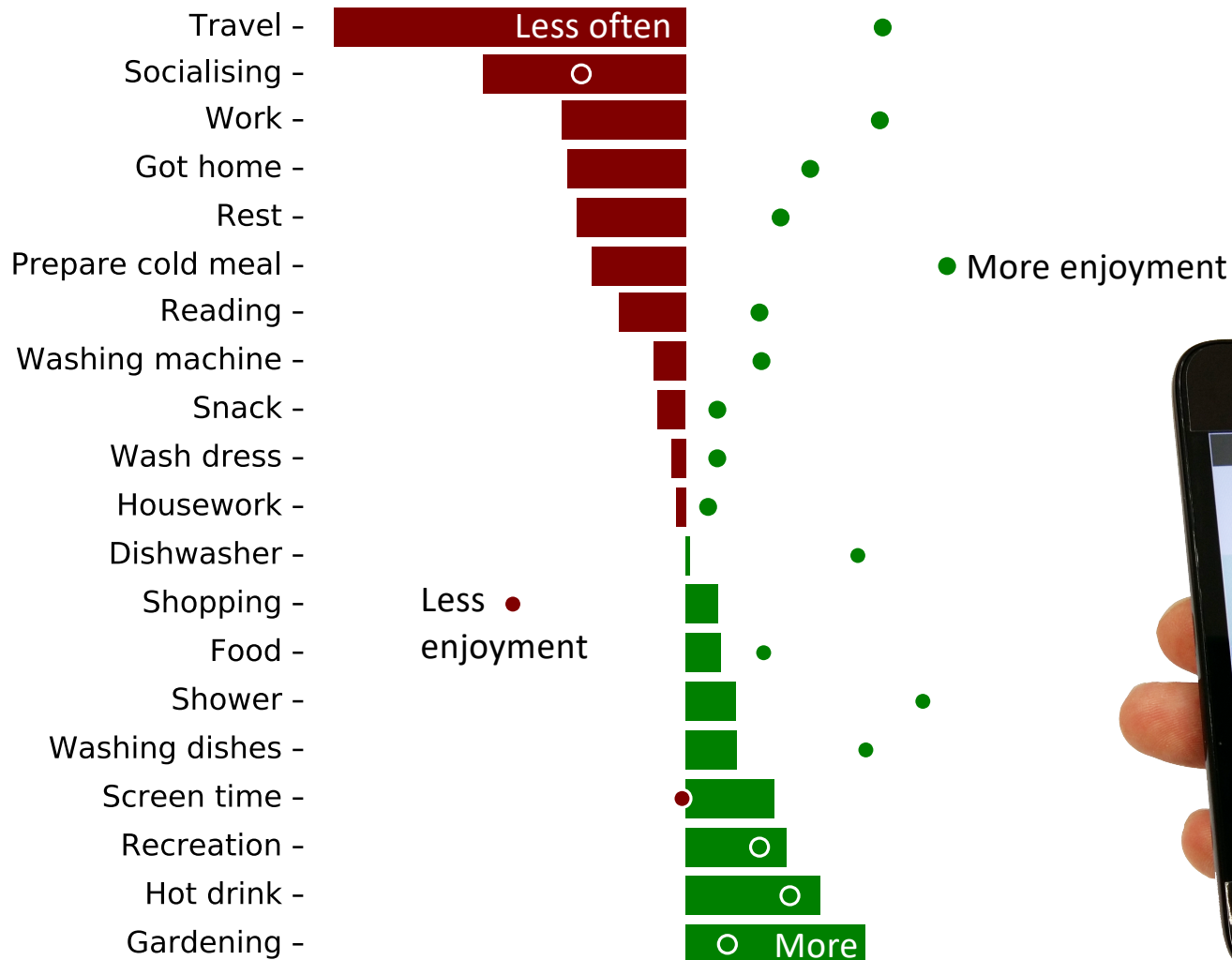
Demand reduction the unknown success story



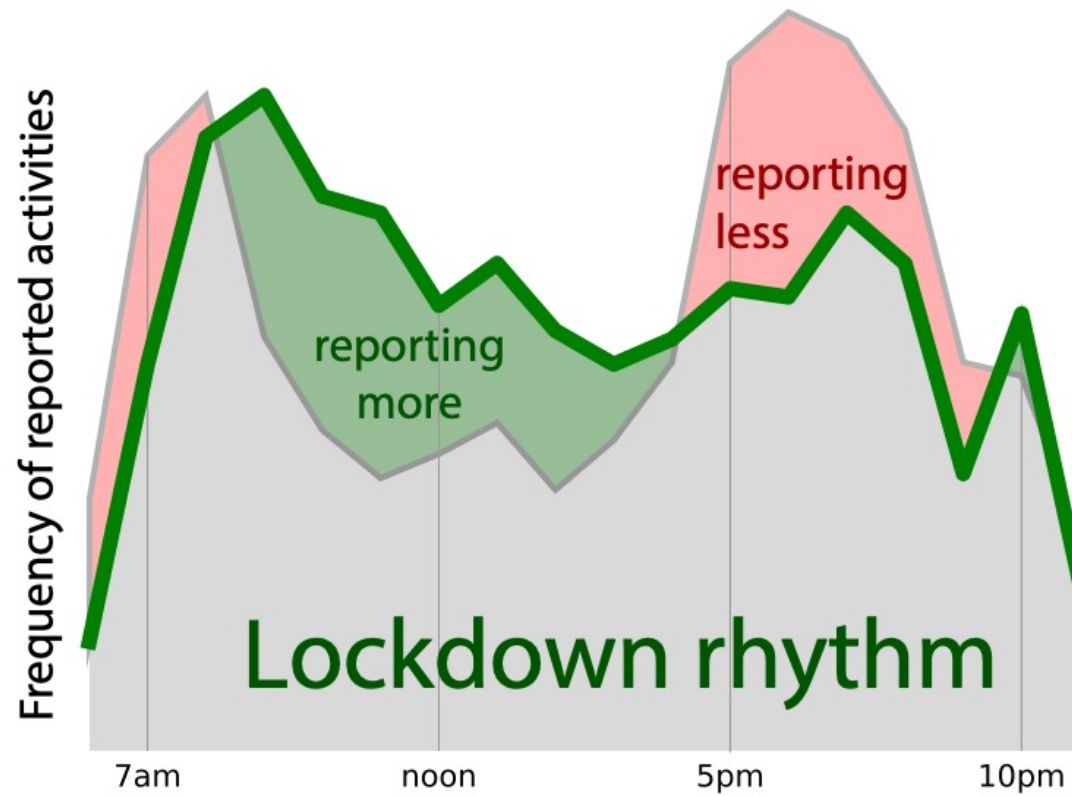
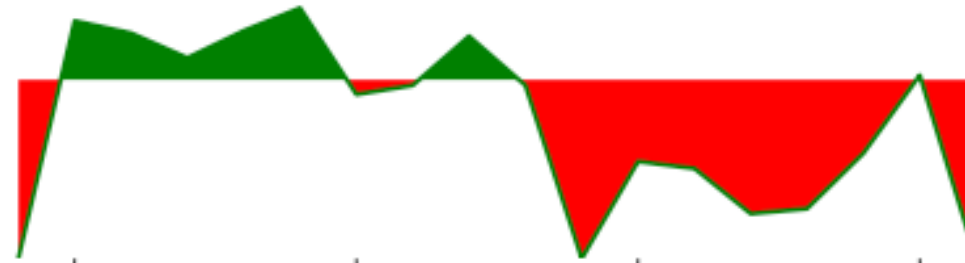
Activity shift

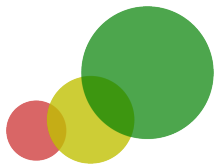


Activity shift



Laundry





Laundry



Morning

Day

Evening

Old normal



Wash Dry Sort
(+cook, clean, care)



Wash

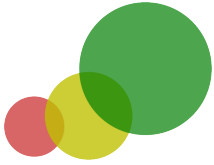


Dry



Sort

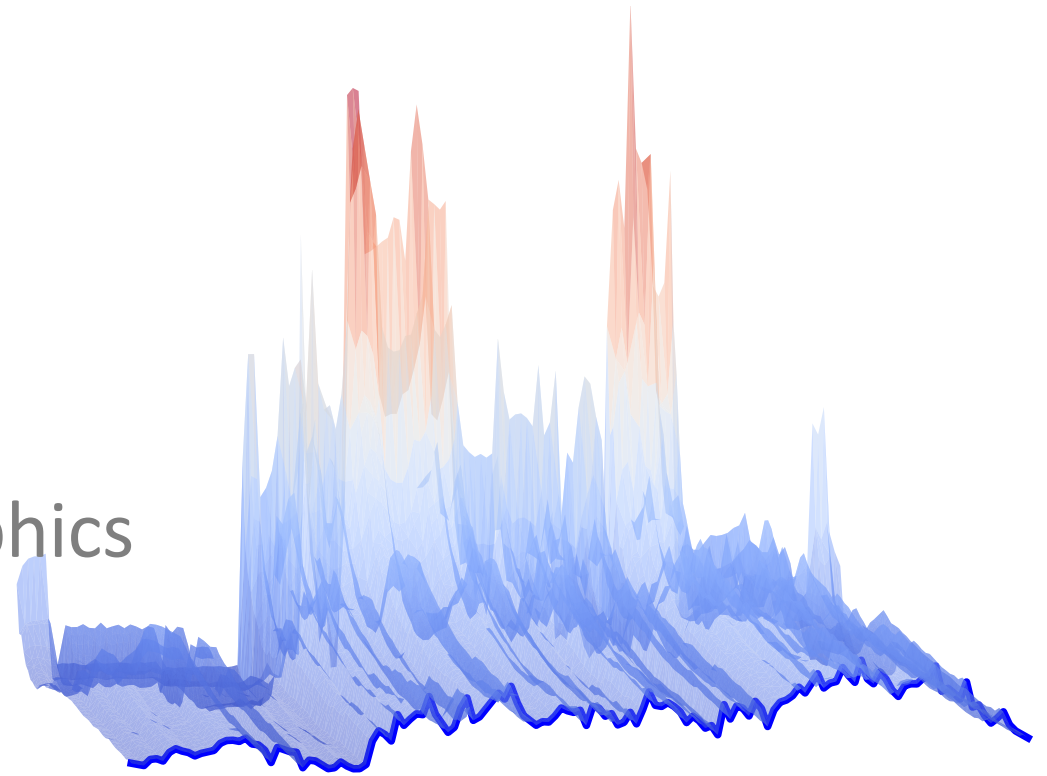




Load modelling

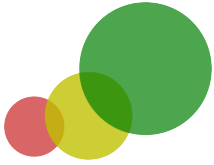
Current variables

- Building stock
- Socio-demographics
- 'Behaviour'



Explain about half of annual demand

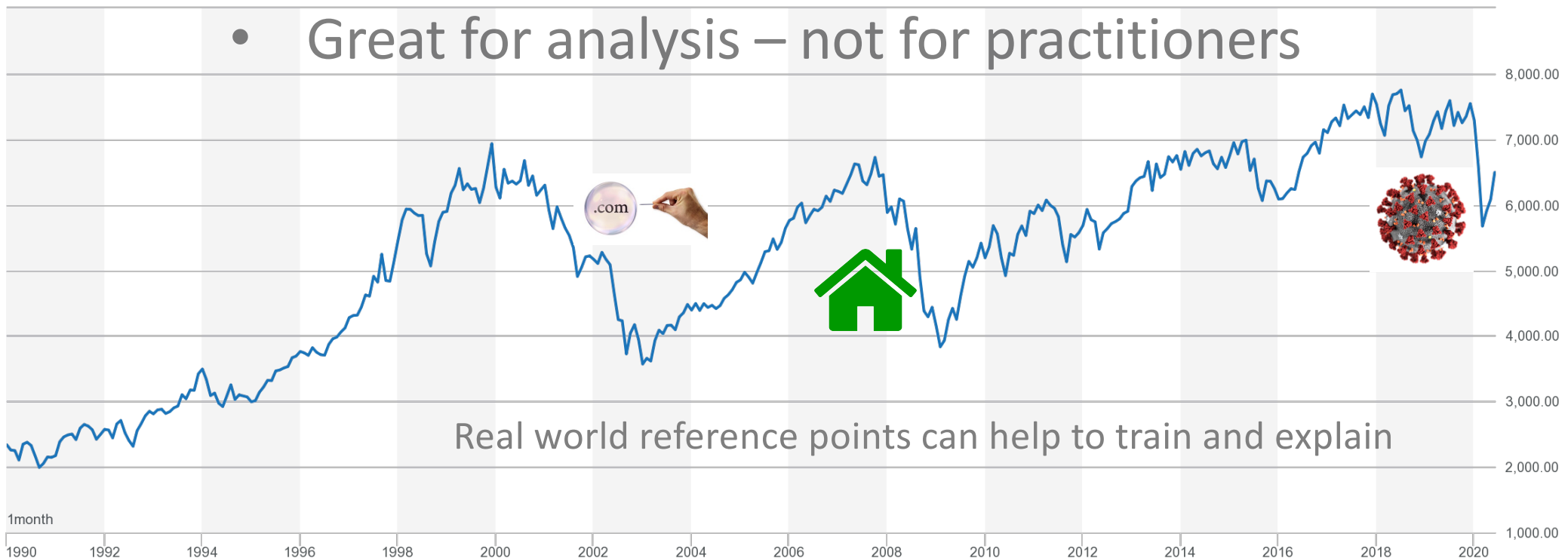
Long way to time resolved, disaggregated models

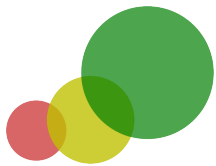


Learning from patterns

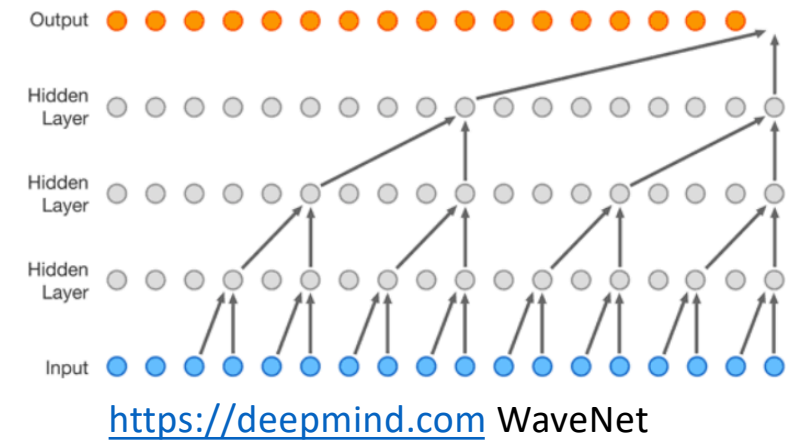
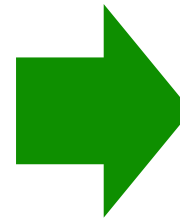
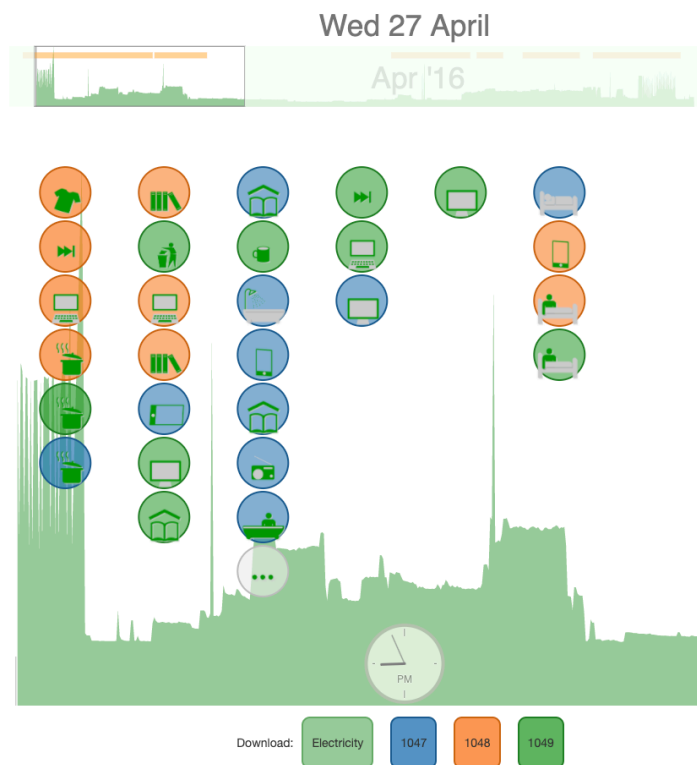
- Great for repeating patterns - not change
- Great for black box magic – not transparency
- Great for analysis – not for practitioners

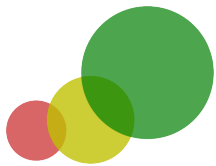
— FTSE 100



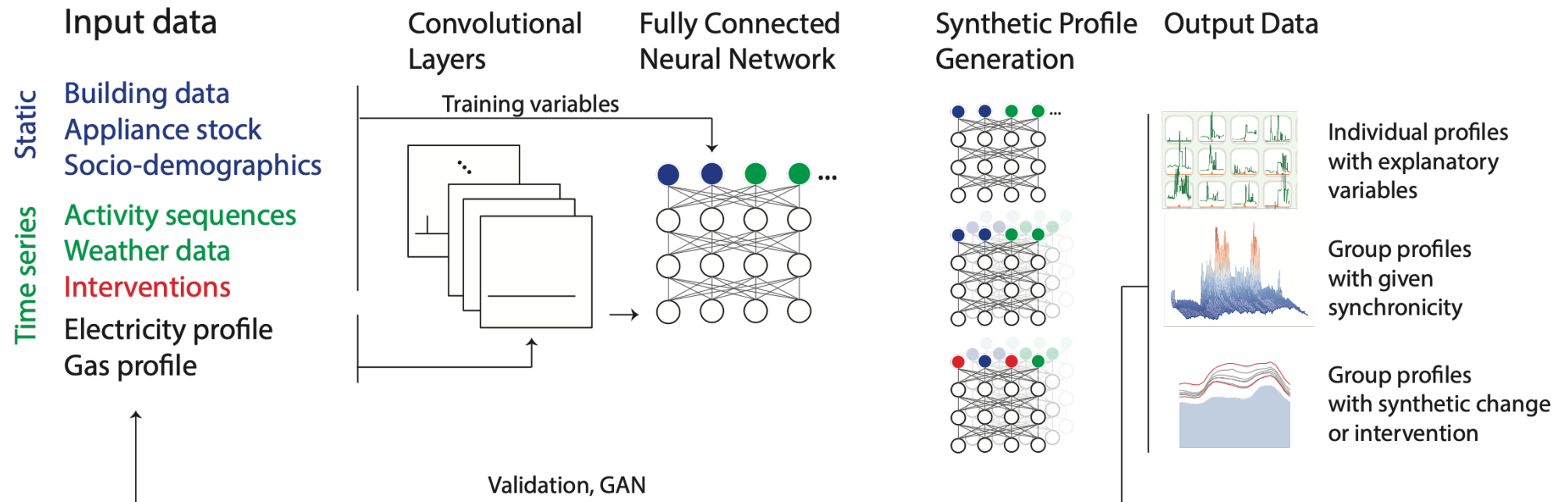


Training a new generation of models





Training a new generation of models



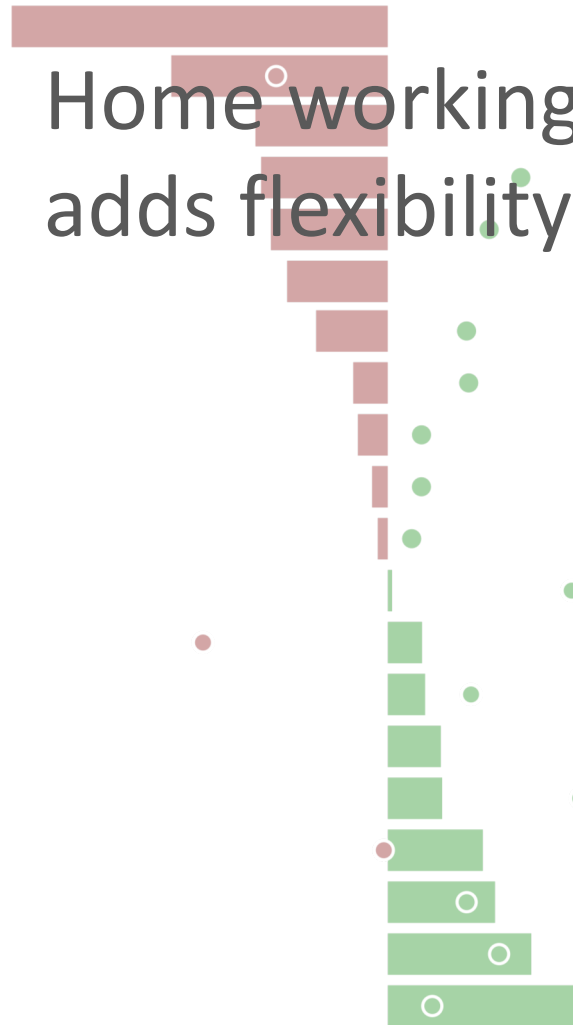
Energy Service

Focus on service
Not kWh



Lockdown

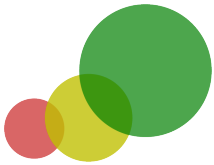
Home working
adds flexibility



Future models

Activities can
train new models





Thank you

Try it
JoyMeter.uk



Marina

Russ

Adriano

Miriam

Davide

Aven



nationalgrid



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