MEASUREMENT INVESTIGATION FOR BEHAVIOURAL CHANGE CAMPAIGN WITHIN UBC RESIDENCES

JACOB GEORGE

INTRODUCTION

20% OF THE TOTAL GLOBAL ENERGY CONSUMPTION WAS FROM THE RESIDENTIAL SECTOR

34% OF THE GLOBAL REDUCTION IN CARBON EMISSIONS FROM ENERGY EFFICIENCY METHODS

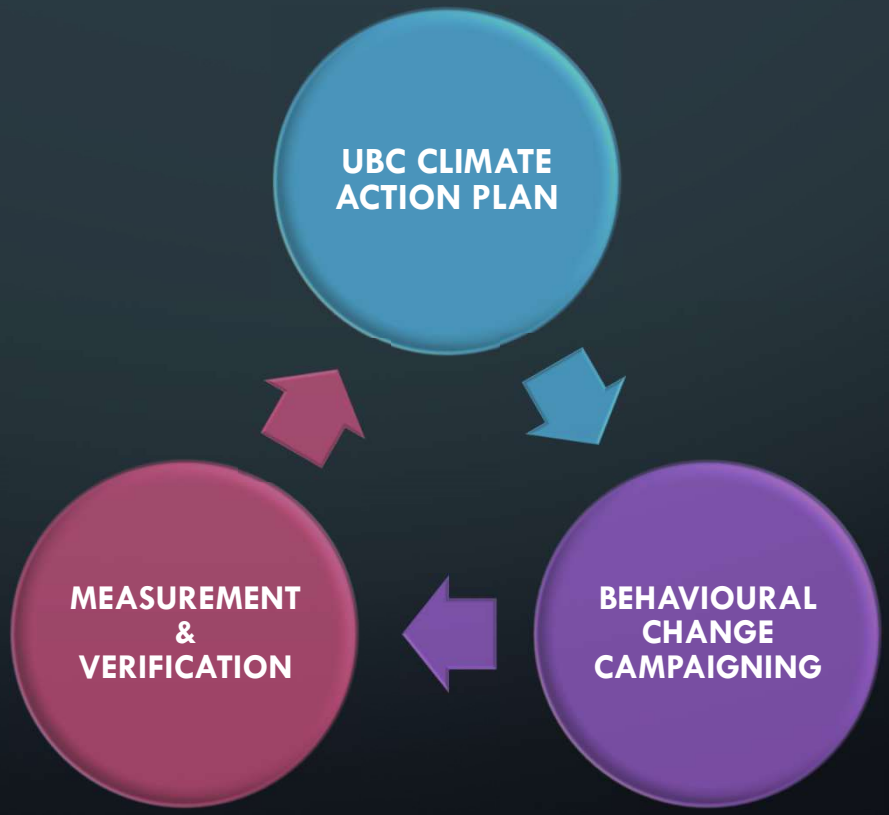
ROLE OF CONSUMER BEHAVIOUR

OBJECTIVES

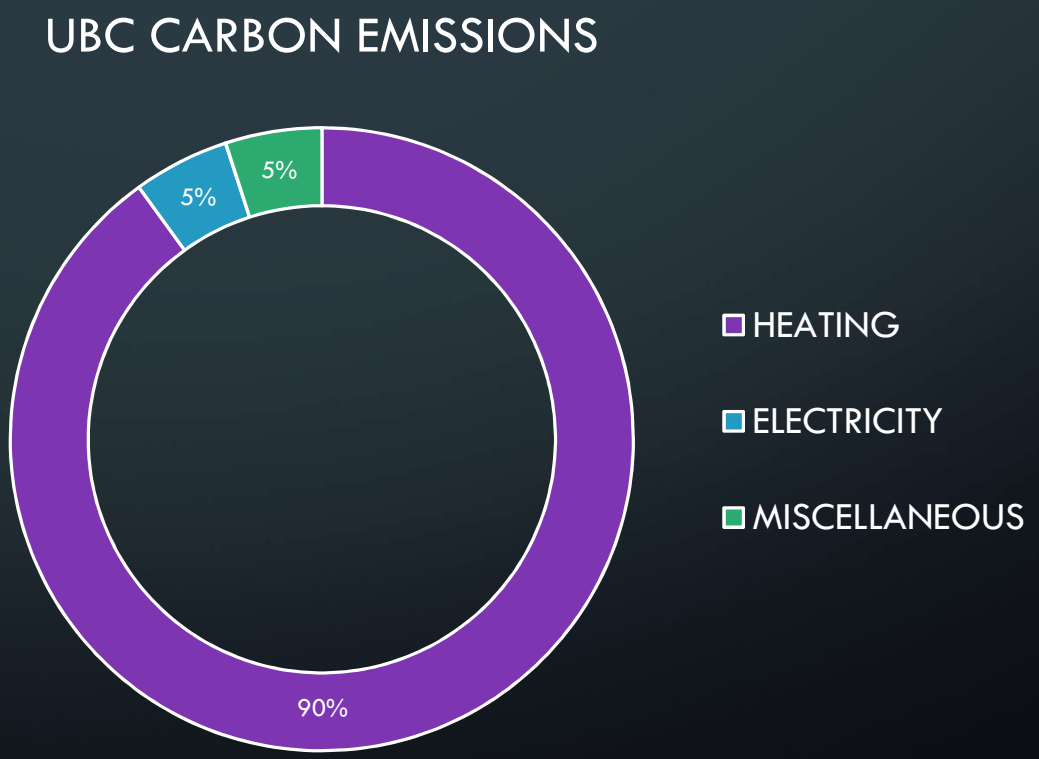
GHG SAVINGS ASSOCIATED WITH THE FALL 2018 SHORTER SHOWERS CAMPAIGN

RECOMMENDATIONS FOR MEASUREMENT AND VERIFICATION (M&V) IN FUTURE CAMPAIGNS

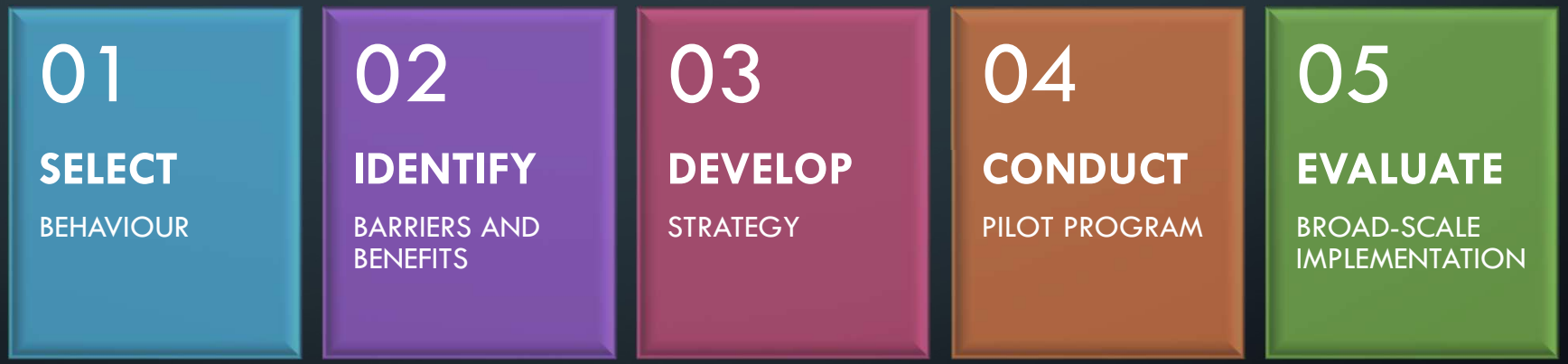
BACKGROUND


UBC CLIMATE ACTION PLAN
BEHAVIOURAL CHANGE CAMPAIGNING
MEASUREMENT & VERIFICATION

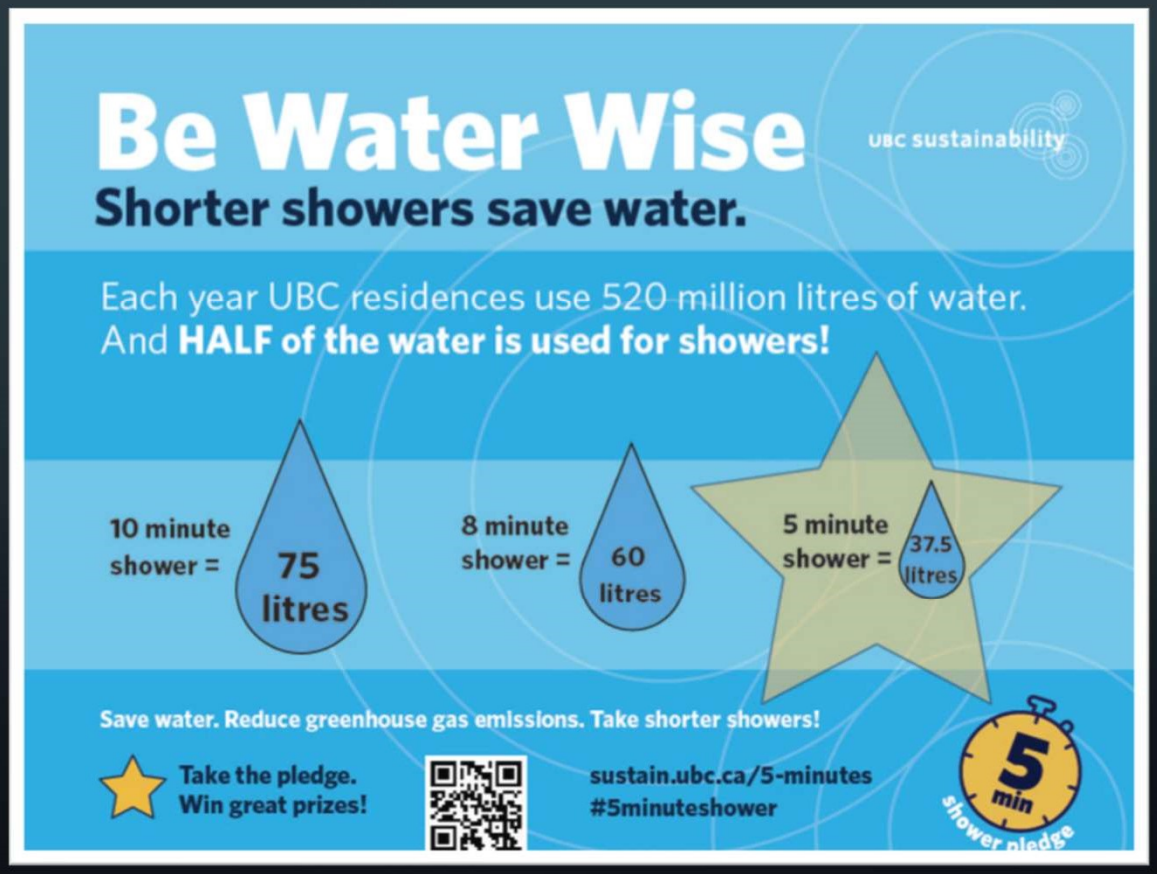
WHY DOES IT MATTER?



COMMUNITY-BASED SOCIAL MARKETING (CBSM)



SHORTER SHOWER CAMPAIGN 2018



PROJECT STEPS

LITERATURE REVIEW

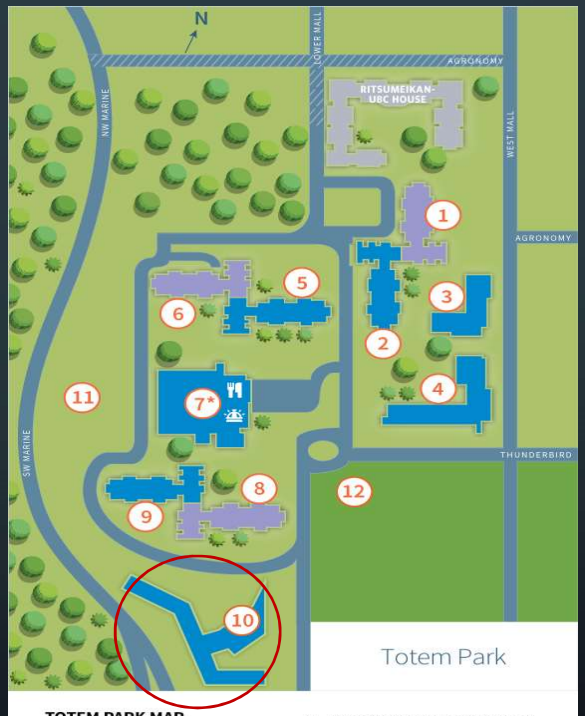
BUILDING MAPPING

IDENTIFY SUB-METERS

DATA ANALYSIS

INFORM RECOMMENDATIONS

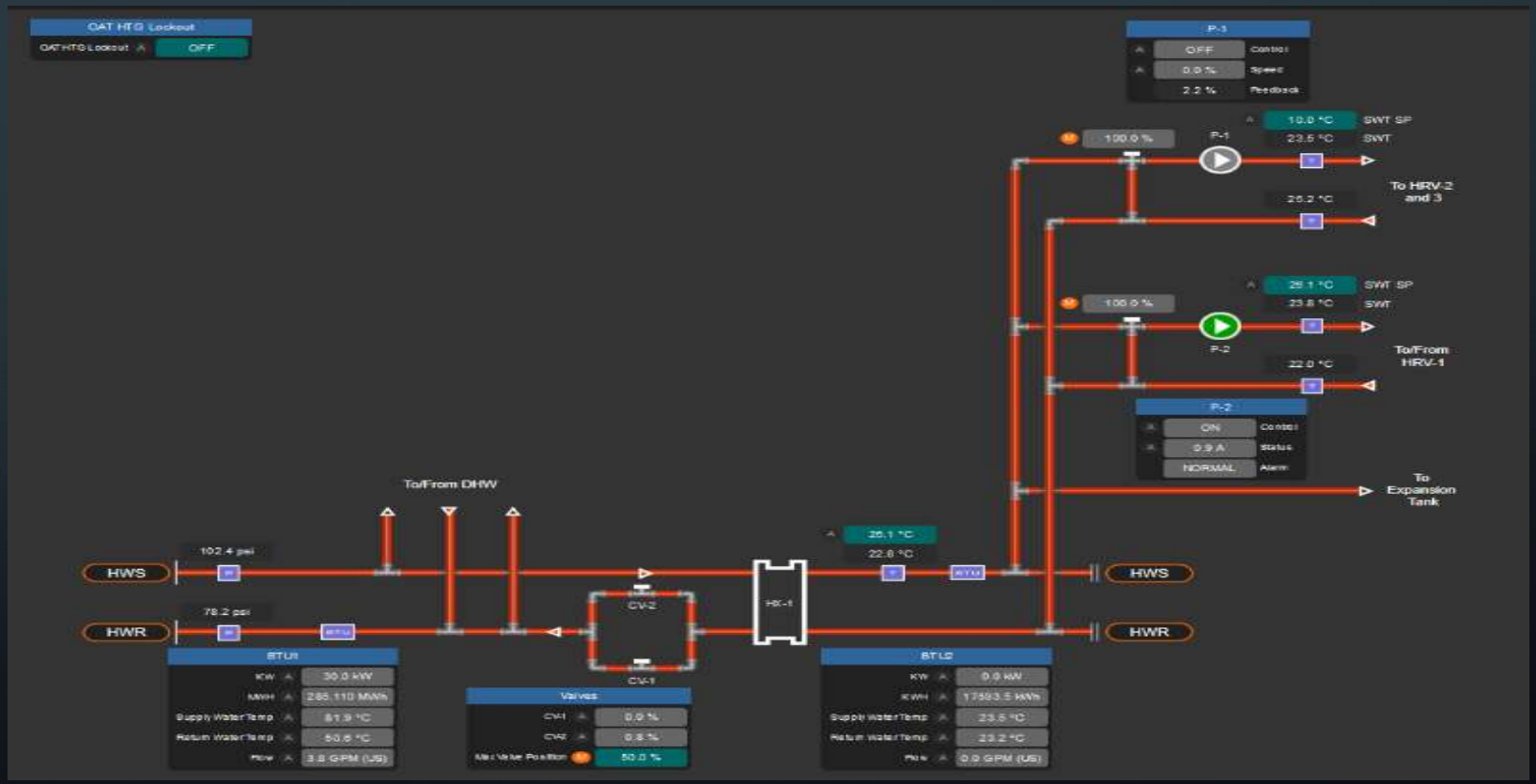
TOTEM INFILL II / CESNAM



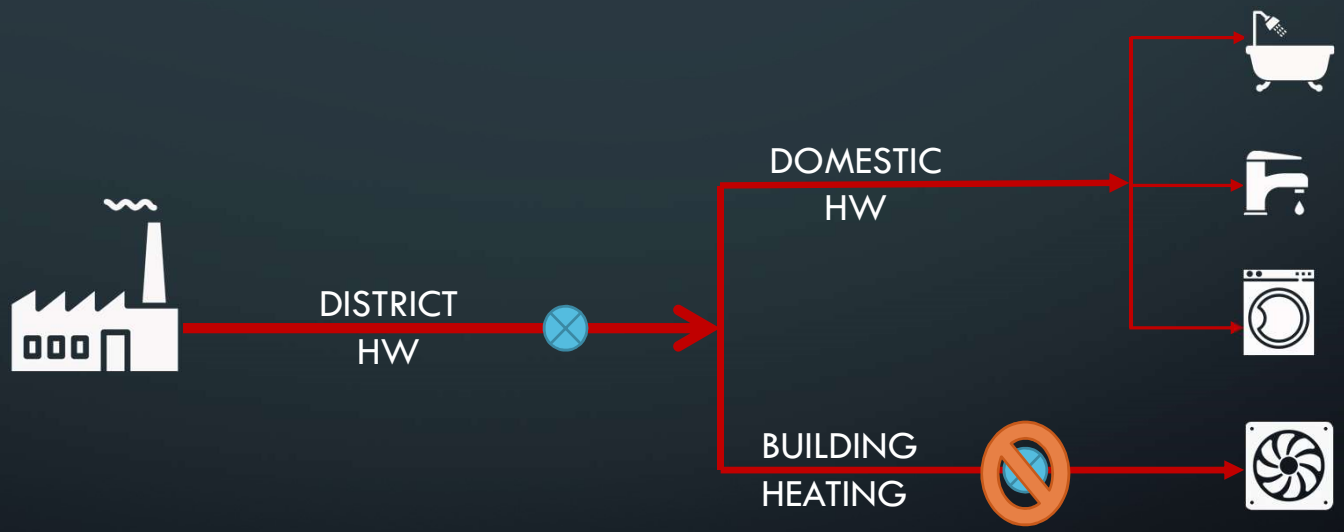
TOTEM PARK MAP

1. Kwakiutl House
2. Shuswap House
3. q'ələ̓χən House
4. həm'ləsəm' House
5. Nootka House
6. Dene House
7. Coquihalla Commonsblock Front Desk and Dining Room
8. Haida House
9. Salish House
10. c'əsna?əm House
11. Sports Field
12. Sports Court

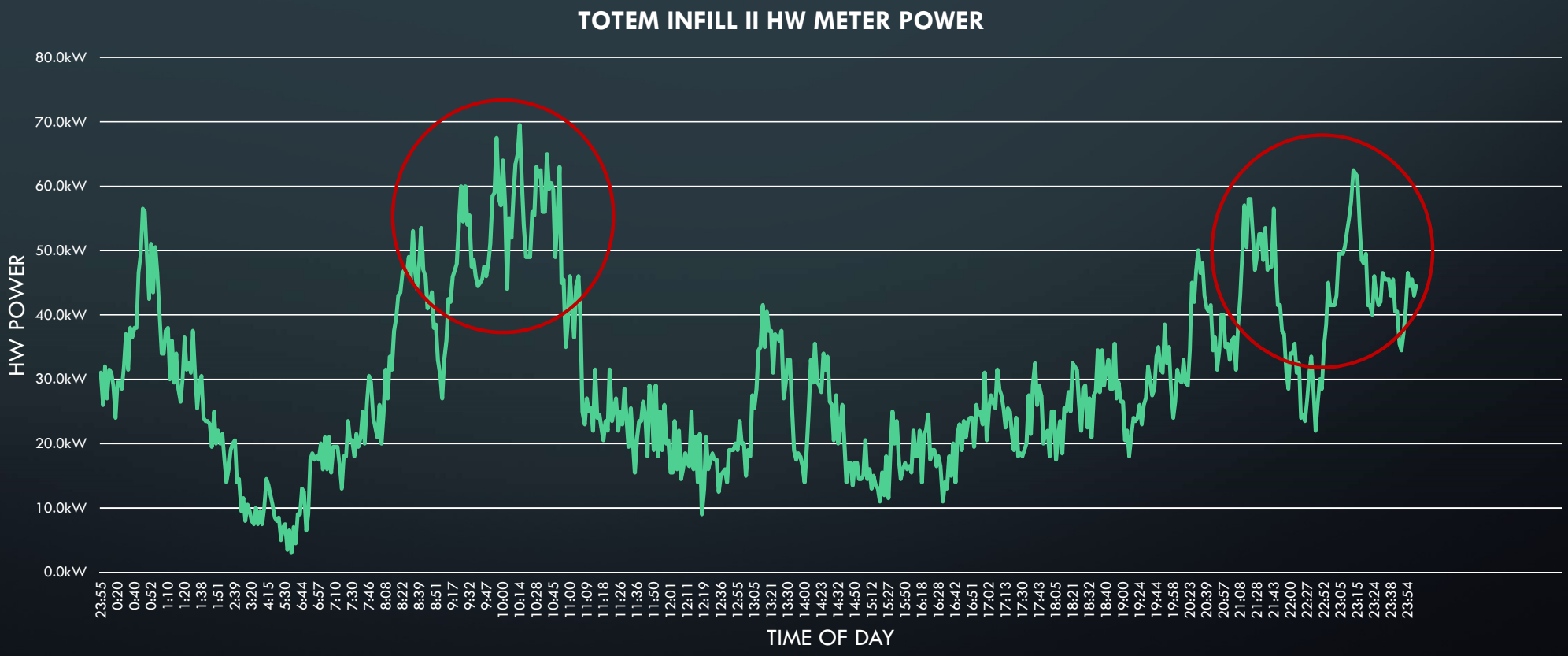
TOTEM INFILL II / CESNAM



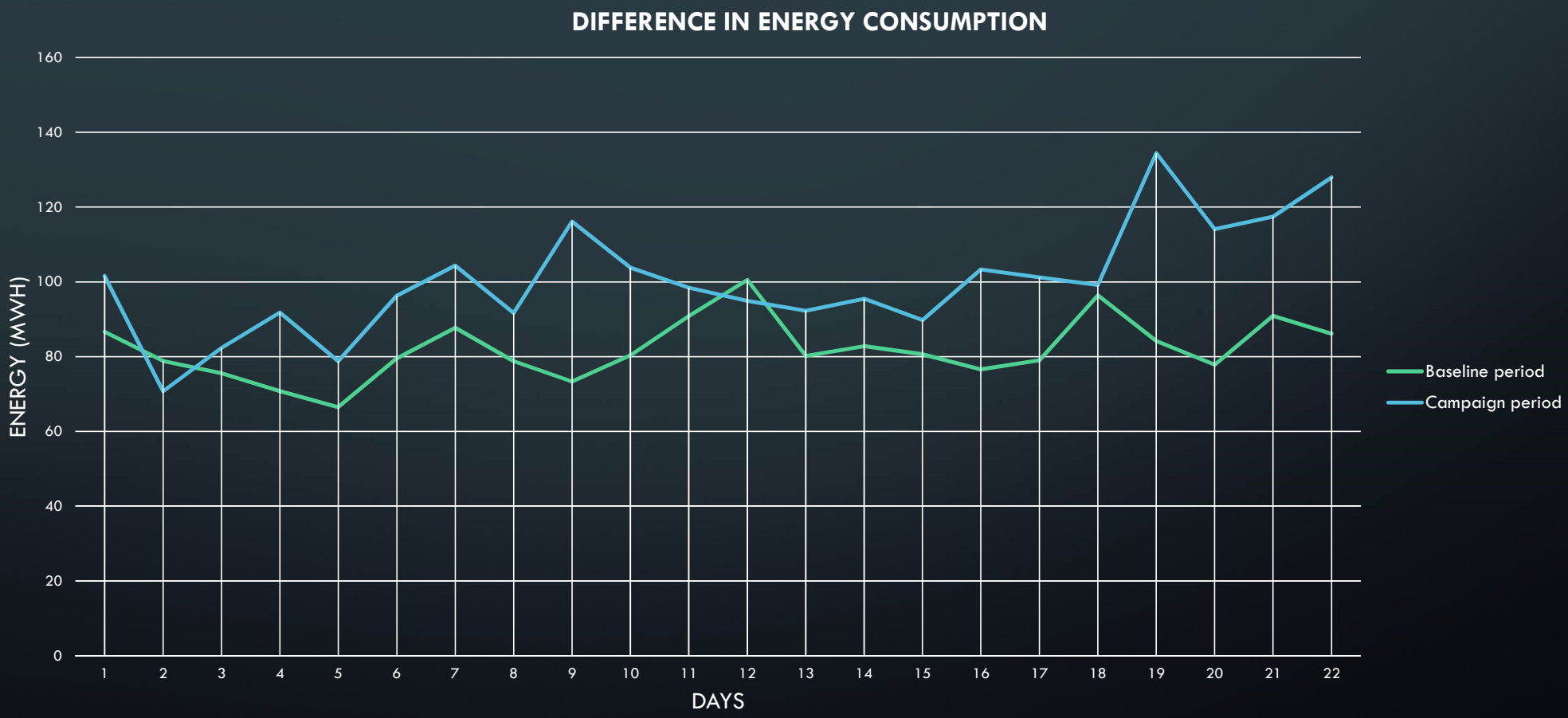
TOTEM INFILL II / CESNAM



DATA WRANGLING



DATA ANALYSIS



RESULTS

BASELINE PERIOD (WEATHER NORMALIZED)	HW ENERGY (MWh)	CAMPAIGN PERIOD	HW ENERGY (MWh)
24-09-2018	87	22-10-2018	102
25-09-2018	79	23-10-2018	71
26-09-2018	76	24-10-2018	82
27-09-2018	71	25-10-2018	92
28-09-2018	66	26-10-2018	79
29-09-2018	80	27-10-2018	96
30-09-2018	88	28-10-2018	104
01-10-2018	79	29-10-2018	92
02-10-2018	73	30-10-2018	116
03-10-2018	80	31-10-2018	104
04-10-2018	91	01-11-2018	98
05-10-2018	100	02-11-2018	95
06-10-2018	80	03-11-2018	92
07-10-2018	83	04-11-2018	95
08-10-2018	81	05-11-2018	90
09-10-2018	77	06-11-2018	103
10-10-2018	79	07-11-2018	101
11-10-2018	96	08-11-2018	99
12-10-2018	84	09-11-2018	134
13-10-2018	78	10-11-2018	114
14-10-2018	91	11-11-2018	117
15-10-2018	86	12-11-2018	128
Total	1804 MWh	**Total**	2206 MWh

DIFFERENCE	**-402 MWh**

RECOMMENDATIONS FOR ACTION

FURTHER SUBMETERING

INDIVIDUAL SHOWER ENERGY METERS

RECOMMENDATIONS FOR RESEARCH

EXPAND RESEARCH

SENSITIVITY ANALYSIS

THANK YOU!

QUESTIONS?

APPENDIX: HEAT RECOVERY VENTILATOR