PROJECT FIREFLY

ENERGY PERFORMANCE CERTIFICATE ANALYSIS FOR THE SERVICE AREAS OF TWO SELECTED SUBSTATIONS

APRIL 2020

UK Power Networks

NAVIGANT
A Guidehouse Company

CONTENTS

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

INTRODUCTION

This analysis forms part of the recommended further work on the energy efficiency (EE) potential modelling task within Project Firefly and helps to provide context for the results of that task.

It uses the information from Electricity Performance Certificates (EPCs) to inform the technical potential for EE measures to reduce energy demand at properties supplied by two primary substations selected by UK Power Networks: Kenardington (in SPN) and Lithos Road (in LPN).

Individual EPCs can be accessed at

https://www.epcregister.com/

and an API is also available to analyse EPCs in bulk at

https://epc.opendatacommunities.org/.

The analysis focuses on domestic properties as EPCs provide only limited energy efficiency information for non-domestic properties.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

OVERVIEW OF A DOMESTIC ENERGY PERFORMANCE CERTIFICATE

NAVIGANT
A Guidehouse Company

OVERVIEW OF A DOMESTIC ENERGY PERFORMANCE CERTIFICATE – FRONT PAGE

An Energy Performance Certificate (EPC) is required whenever a property is:

- built,
- sold, or
- rented

and is valid for ten years.

An EPC contains:

- information about a property's energy use and typical energy costs
- recommendations about how to reduce energy use and save money

Energy Performance Certificate

HM Government

Birkhall Road, LONDON, SE6 1TF

Dwelling type:	Mid-terrace house	**Reference number:**	0060-2823-7593-9391-8005
Date of assessment:	17 January 2019	**Type of assessment:**	RdSAP, existing dwelling
Date of certificate:	17 January 2019	**Total floor area:**	100 m²

Use this document to:

- Compare current ratings of properties to see which properties are more energy efficient
- Find out how you can save energy and money by installing improvement measures

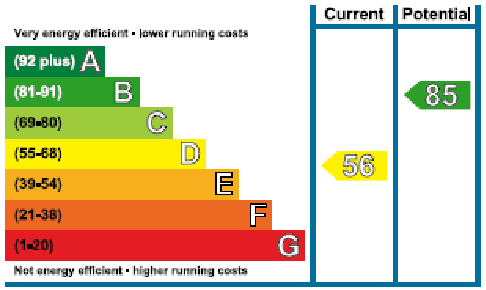
Estimated energy costs of dwelling for 3 years:	**£ 3,081**
Over 3 years you could save	**£ 1,440**

Estimated energy costs of this home

	Current costs	Potential costs	Potential future savings
Lighting	£ 357 over 3 years	£ 207 over 3 years	You could save £ 1,440 over 3 years
Heating	£ 2,349 over 3 years	£ 1,221 over 3 years	
Hot Water	£ 375 over 3 years	£ 213 over 3 years	
Totals	£ 3,081	£ 1,641	

These figures show how much the average household would spend in this property for heating, lighting and hot water and is not based on energy used by individual households. This excludes energy use for running appliances like TVs, computers and cookers, and electricity generated by microgeneration.

Energy Efficiency Rating



The graph shows the current energy efficiency of your home.

The higher the rating the lower your fuel bills are likely to be.

The potential rating shows the effect of undertaking the recommendations on page 3.

The average energy efficiency rating for a dwelling in England and Wales is band D (rating 60).

The EPC rating shown here is based on standard assumptions about occupancy and energy use and may not reflect how energy is consumed by individual occupants.

Key details about the property such as address, type of dwelling, assessment date and floor area.

Estimates of the energy cost for the property, broken down into heating, hot water and lighting.

The potential costs are estimated costs after implementing the recommended measures (see next slide) and consider only technical (not commercial) feasibility.

The property's current and potential energy efficiency rating.

The potential rating is the rating after implementing the recommended measures (see next slide) and considers only technical (not commercial) feasibility.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT A Guidehouse Company

OVERVIEW OF A DOMESTIC ENERGY PERFORMANCE CERTIFICATE – PAGES 2 AND 3

Summary of this home's energy performance related features

Element	Description	Energy Efficiency
Walls	Solid brick, as built, no insulation (assumed)	★☆☆☆☆
Roof	Pitched, 150 mm loft insulation	★★★★☆
Floor	Solid, no insulation (assumed)	—
Windows	Fully double glazed	★★★☆☆
Main heating	Boiler and radiators, mains gas	★★★★☆
Main heating controls	Programmer, no room thermostat	★☆☆☆☆
Secondary heating	Room heaters, mains gas	—
Hot water	From main system	★★★★☆
Lighting	Low energy lighting in 29% of fixed outlets	★★★☆☆

Current primary energy use per square metre of floor area: 273 kWh/m² per year

The property's energy performance-related features are described (from a list of standard descriptions) and rated on a five-star scale

Energy usage per square metre of floor area

Your home's heat demand

For most homes, the vast majority of energy costs derive from heating the home. Where applicable, this table shows the energy that could be saved in this property by insulating the loft and walls, based on typical energy use (shown within brackets as it is a reduction in energy use).

Heat demand	Existing dwelling	Impact of loft insulation	Impact of cavity wall insulation	Impact of solid wall insulation
Space heating (kWh per year)	9,346	(318)	N/A	(3,252)
Water heating (kWh per year)	2,236			

Recommended measures	Indicative cost	Typical savings per year	Rating after improvement
Internal or external wall insulation	£4,000 - £14,000	£ 227	D66
Floor insulation (solid floor)	£4,000 - £6,000	£ 32	D67
Low energy lighting for all fixed outlets	£25	£ 40	D68
Heating controls (room thermostat and TRVs)	£350 - £450	£ 84	C72
Replace boiler with new condensing boiler	£2,200 - £3,000	£ 64	C74
Solar water heating	£4,000 - £6,000	£ 33	C76
Solar photovoltaic panels, 2.5 kWp	£5,000 - £8,000	£ 309	B85

Figures in these sections are not accessible via the API, so we have not been able to include them in our analysis.

They can only be obtained by viewing individual certificates.

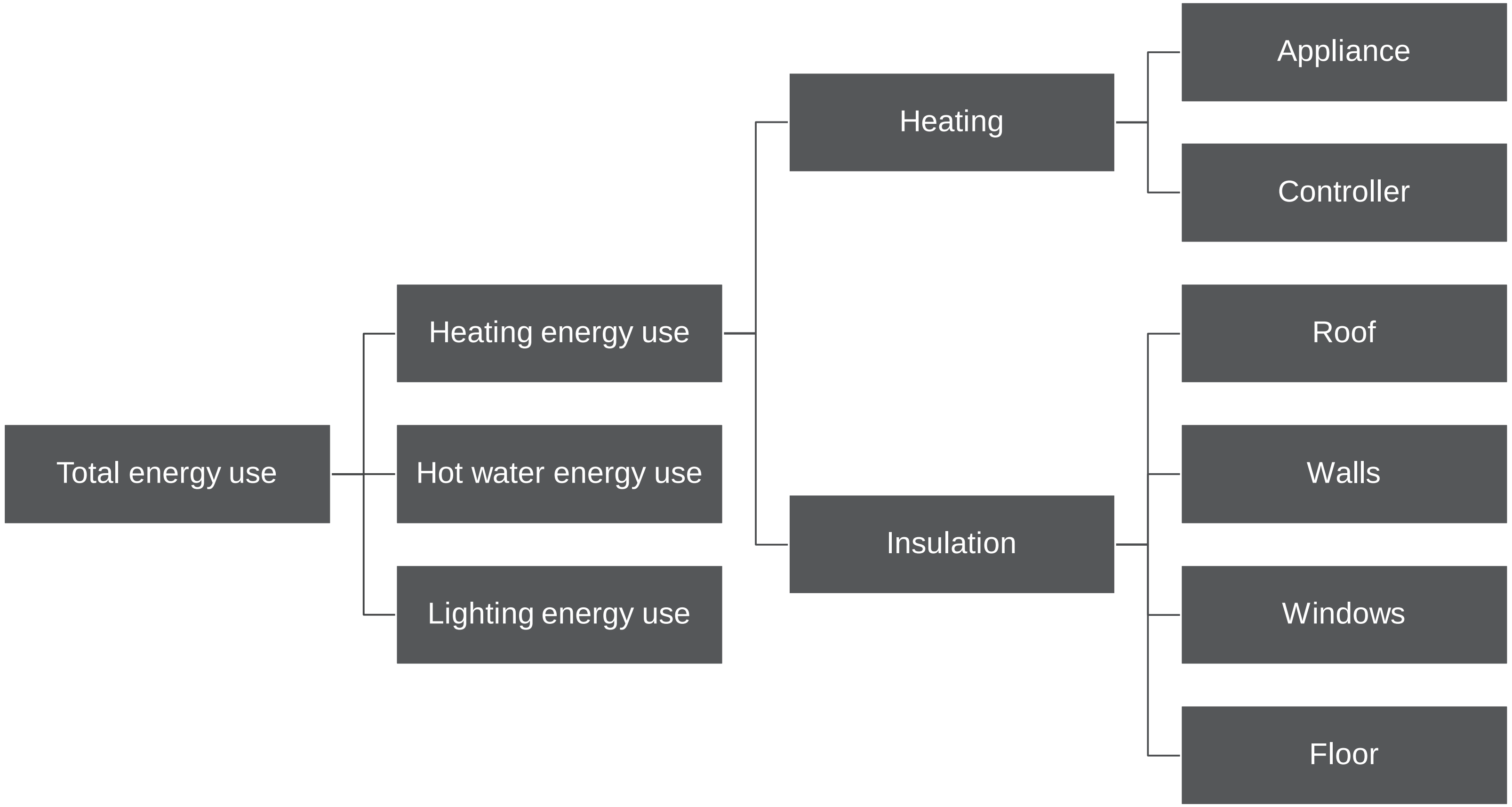
The measures describe what is required to increase the property's energy performance in a feature to a five star rating, along with the indicative cost and typical ongoing savings from doing so.

For many of the measures, the savings are very small relative to the costs. The cost-benefit analysis (CBA) of each measure may not come out positive.

Some of the measures (e.g. solar water heating and PV) may not be considered typically as energy efficiency improvements.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

DOMESTIC ENERGY PERFORMANCE CERTIFICATE – HIERARCHY OF INFORMATION



Comment

A domestic Energy Performance Certificate provides total energy use split into three categories:

- Heating
- Hot water
- Lighting

For heating energy use, the energy performance of its key drivers is also provided.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT A Guidehouse Company

SUBSTATIONS AND PROPERTY CHARACTERISTICS

NAVIGANT
A Guidehouse Company

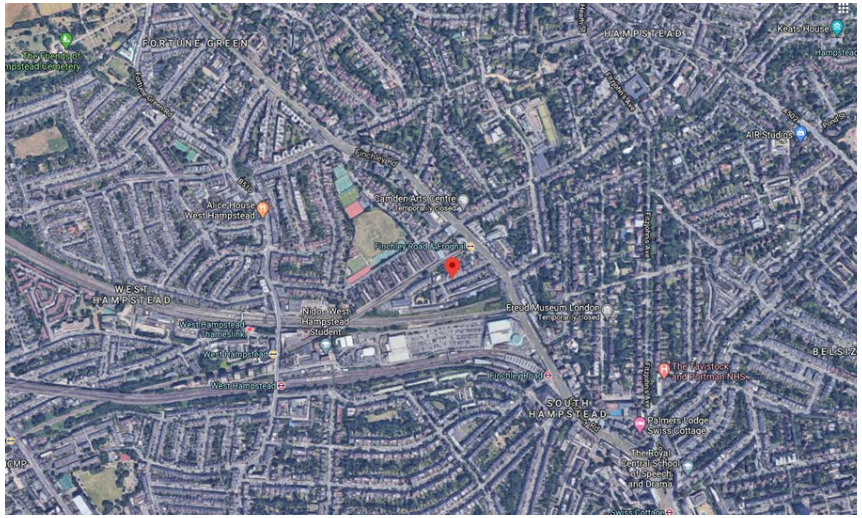
CHARACTERISTICS OF THE TWO SUBSTATIONS UNDER STUDY

Kenardington is a village in the south east of England

Domestic EPCs (issued between 2008 and 2019)	898
Domestic electricity customers (as of Q4 2019)	1,662
Coverage	54%

Lithos Rd is situated in North London

Domestic EPCs (issued between 2008 and 2019)	25,450
Domestic electricity customers (as of Q4 2019)	37,907
Coverage	67%



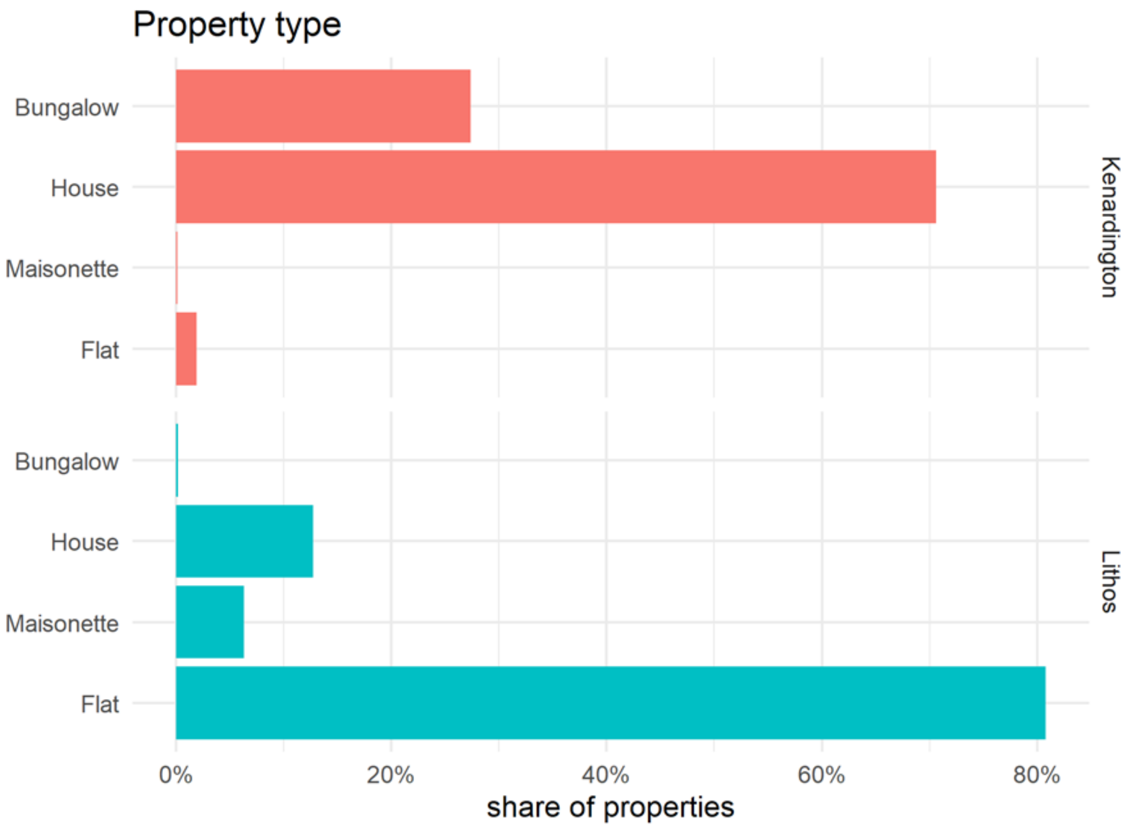
The analysis in the main body of this document focuses on domestic properties. Some limited information that is available from non-domestic EPCs is presented in the appendix.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

PROPERTY TYPES IN EACH SUBSTATION TERRITORY

Kenardington serves mainly houses and bungalows, while Lithos serves mainly flats



Comment

This chart shows the share of properties served by each substation, classified by the property type.

In the Washington state dataset used for our main EE potential modelling:

- 78% of properties were single-family homes
  - Equivalent to house or bungalow under the EPC property type
- 22% were multi-family homes
  - maisonette or flat

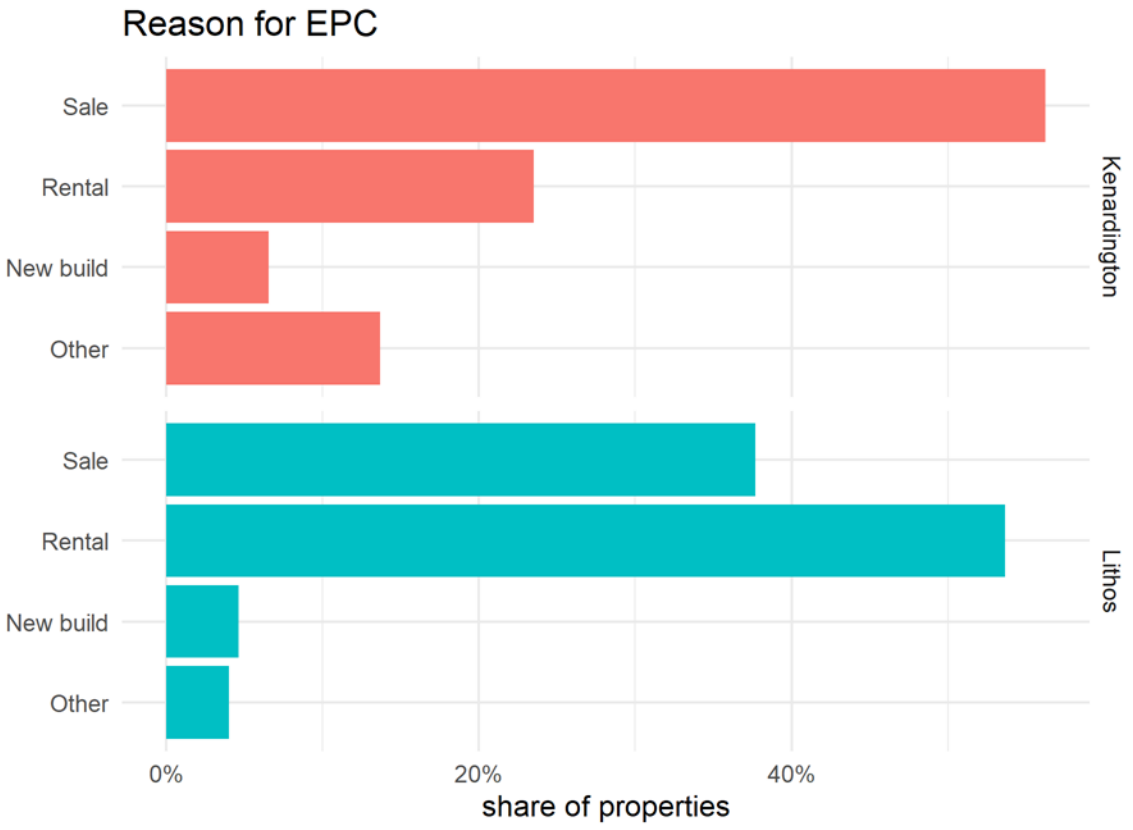
Thus the Washington state property mix sits between these two substations and closer to Kenardington.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

PROPERTY TYPES IN EACH SUBSTATION TERRITORY

Lithos is likely to have a larger share of rental properties



Comment

This chart shows the reason each EPC was issued. Note that this is not the same as simple ownership type.

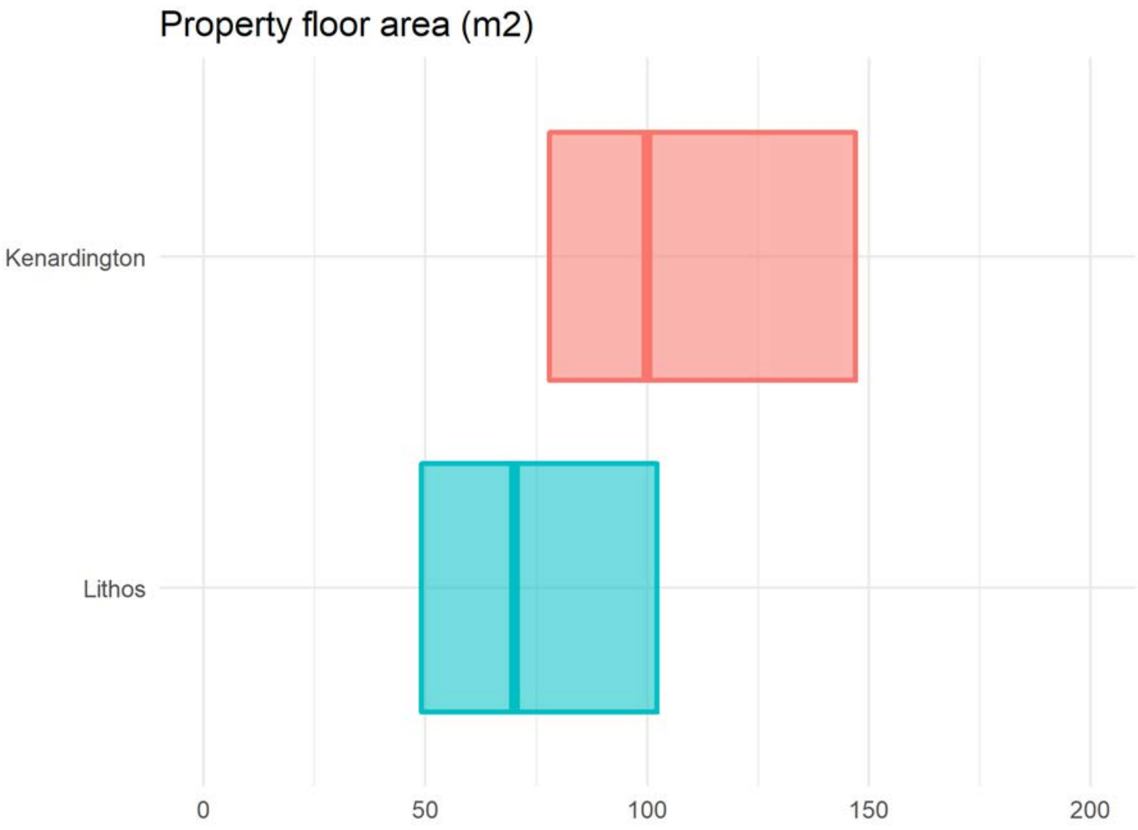
Reasons in the *Other* category include assessments for various government programmes such as Green Deal, FiT, RHI and ECO, and reasons not recorded.

In the Washington state data, 84% of single-family homes were owned and 16% were rented. (Single-family homes account for 78% of properties.) Comparable ownership data for multi-family homes was not available.

 ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

PROPERTY SIZES IN EACH SUBSTATION TERRITORY

Kenardington properties are generally larger



Comment

This chart shows the median and lower- and upper-quartile property floor area in square metres. The line through the box represents the median value, while the sides of box are the lower- and upper-quartiles.

Kenardington properties have a median size of 100 square metres, while Lithos properties are typically smaller at a median of 70 square metres.

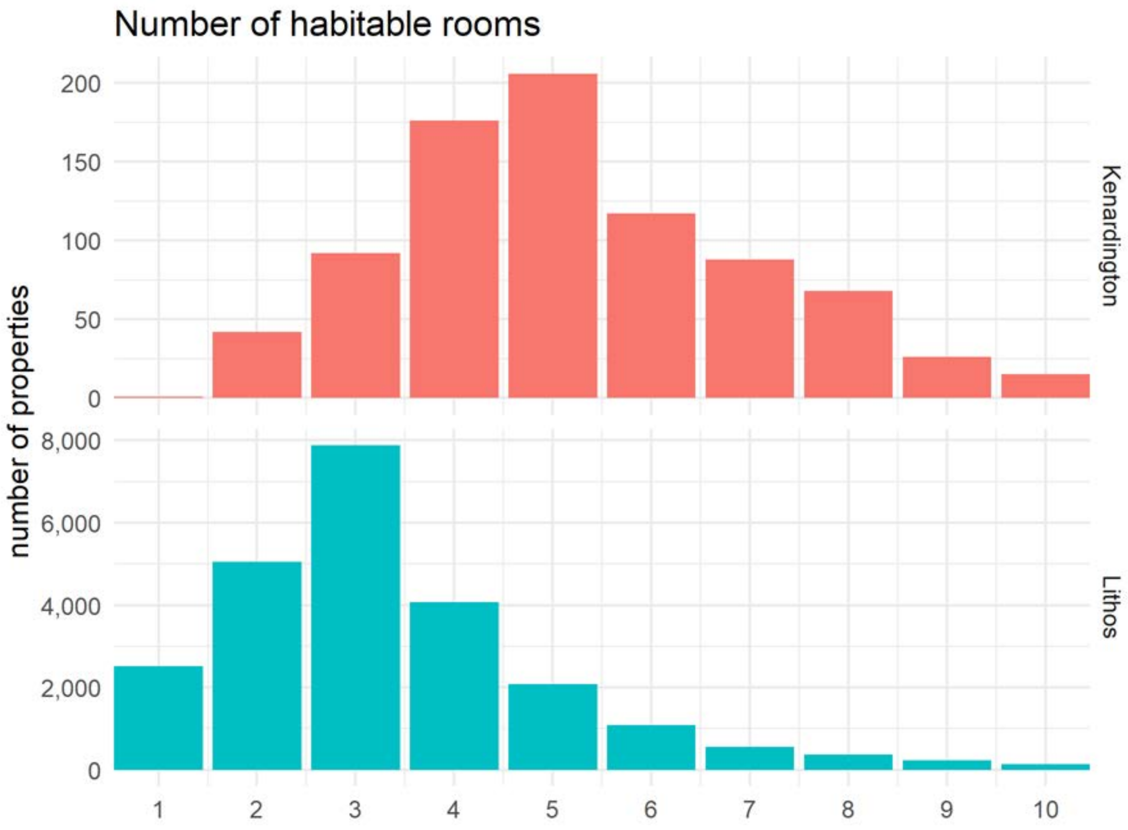
In the Washington state data, the average floor area was 157 square metres, larger than for these two substations.

 ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

PROPERTY SIZES IN EACH SUBSTATION TERRITORY

Kenardington properties typically have more habitable rooms



Comment

This chart shows the number of properties served by each substation, categorised by the number of habitable rooms at each property.

Habitable rooms include rooms such as bedrooms and reception rooms, and exclude rooms such as kitchens, bathrooms and utility rooms.

The most common number of habitable rooms for Kenardington is five, while at Lithos it is three.

Comparable data was not available for Washington state.

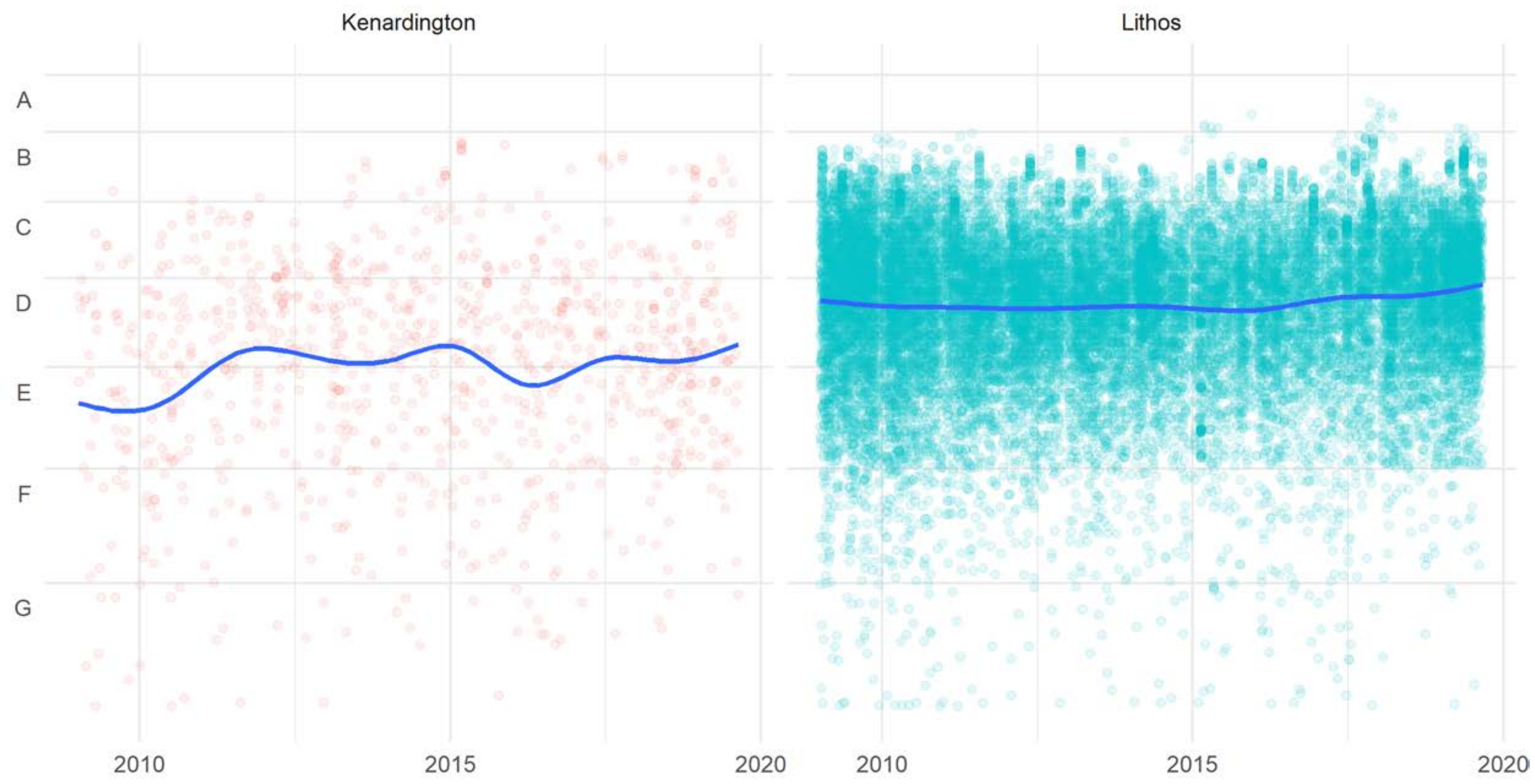
 ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

OVERALL ENERGY EFFICIENCY RATINGS

ENERGY EFFICIENCY RATINGS HAVE SHOWN LITTLE IMPROVEMENT OVER TIME

Energy efficiency ratings over time



Comment

This chart shows the energy efficiency ratings by the issue date for each EPC. The dots show individual EPCs issued while the blue lines are (non-linear) lines of best fit.

Lithos has a slightly higher average rating than Kenardington, with Lithos' average sitting at the top of the *D* band while Kenardington's is closer to the bottom of that band.

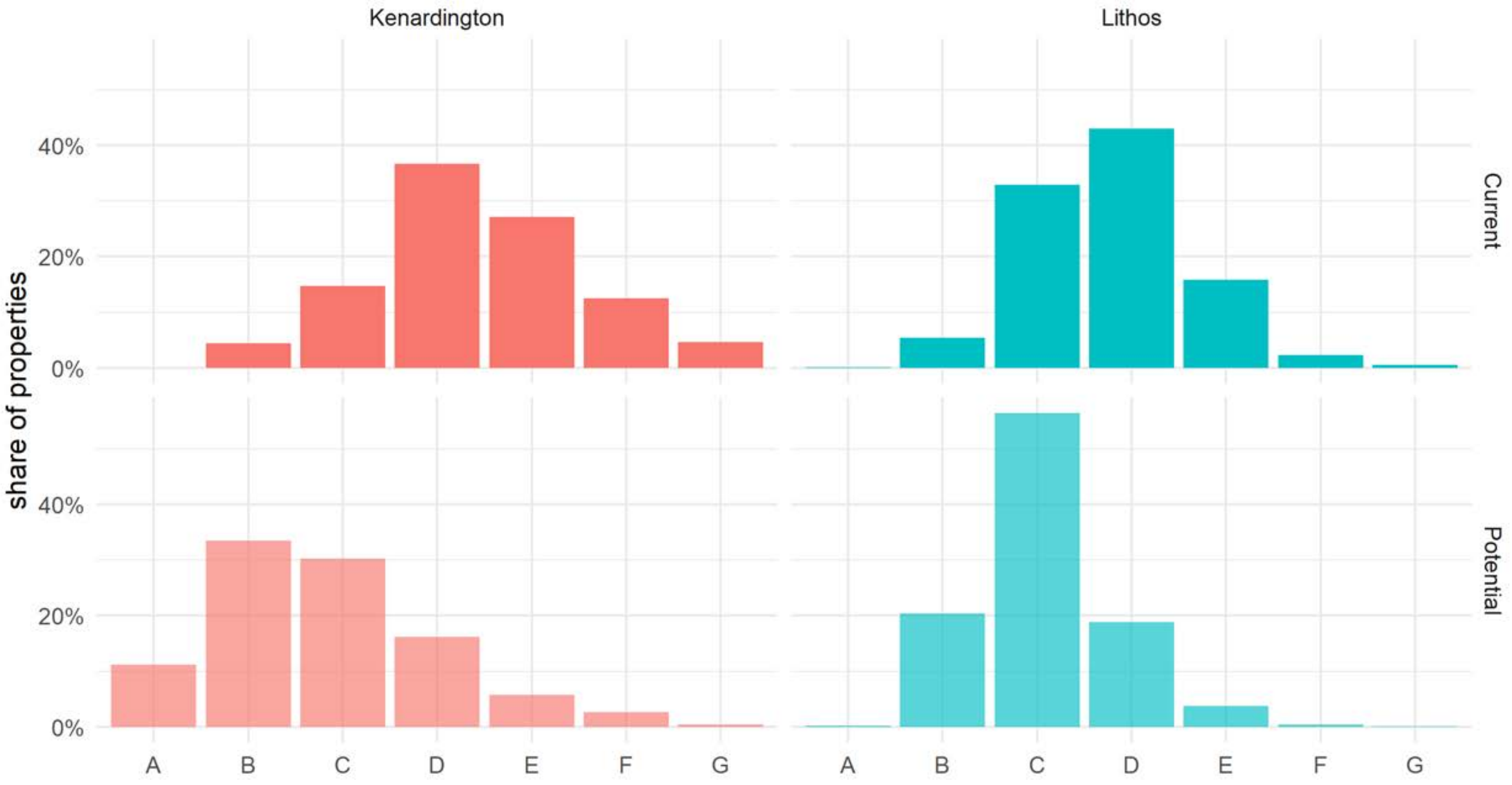
Kenardington's trend line shows more variability due to fewer EPCs being issued in its territory.

 ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

SIGNIFICANT (TECHNICAL) POTENTIAL EXISTS TO IMPROVE ENERGY EFFICIENCY RATINGS

Energy efficiency ratings – current and potential



Comment

This chart shows the distribution of current (top) and potential (bottom) energy efficiency ratings by substation.

A potential rating represents the property's rating if all recommended energy efficiency measures in an EPC were implemented. Note, however, that the CBA of each measure is not necessarily positive.

Kenardington has better potential ratings than Lithos – driven by greater energy efficiency potential for bungalows and houses (e.g. from the potential to install rooftop solar PV and water heating). In both territories, the median rating would improve from D to C.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

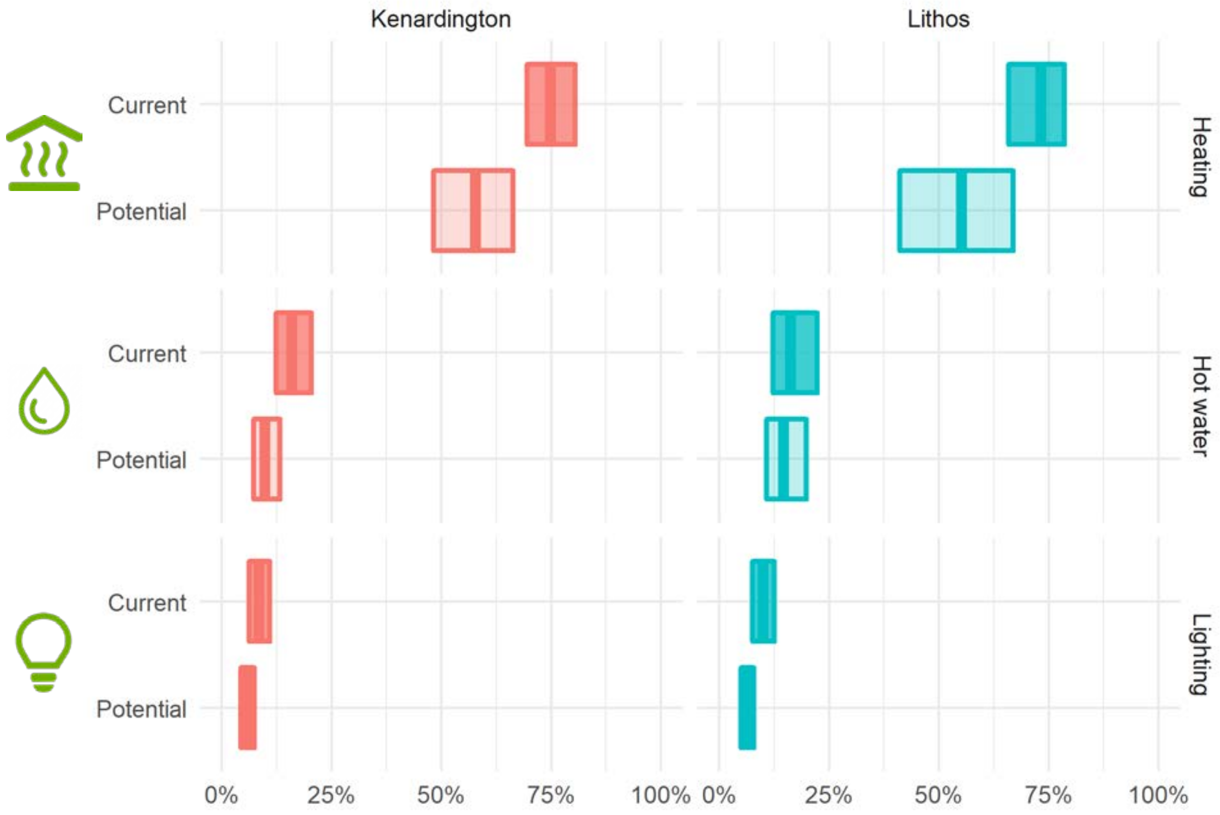
NAVIGANT
A Guidehouse Company

DETAILED MEASURE ANALYSIS – HEATING, HOT WATER, AND LIGHTING

NAVIGANT
A Guidehouse Company

INTRODUCTION TO DETAILED ANALYSIS

Energy bill share by category – heating, hot water and lighting



Comment

This chart shows the estimated energy bill share by category of heating (top), hot water (middle) and lighting (bottom) for current and potential bills.

The potential bill is the estimated bill after implementing all energy efficiency recommendations in an EPC.

All shares are shown relative to current total bill (so the sum of potential shares is less than 100%).

The line through the box represents the median value, while the sides of box are the lower- and upper-quartiles.

The figures represent running costs only (e.g. they do not include capital costs).

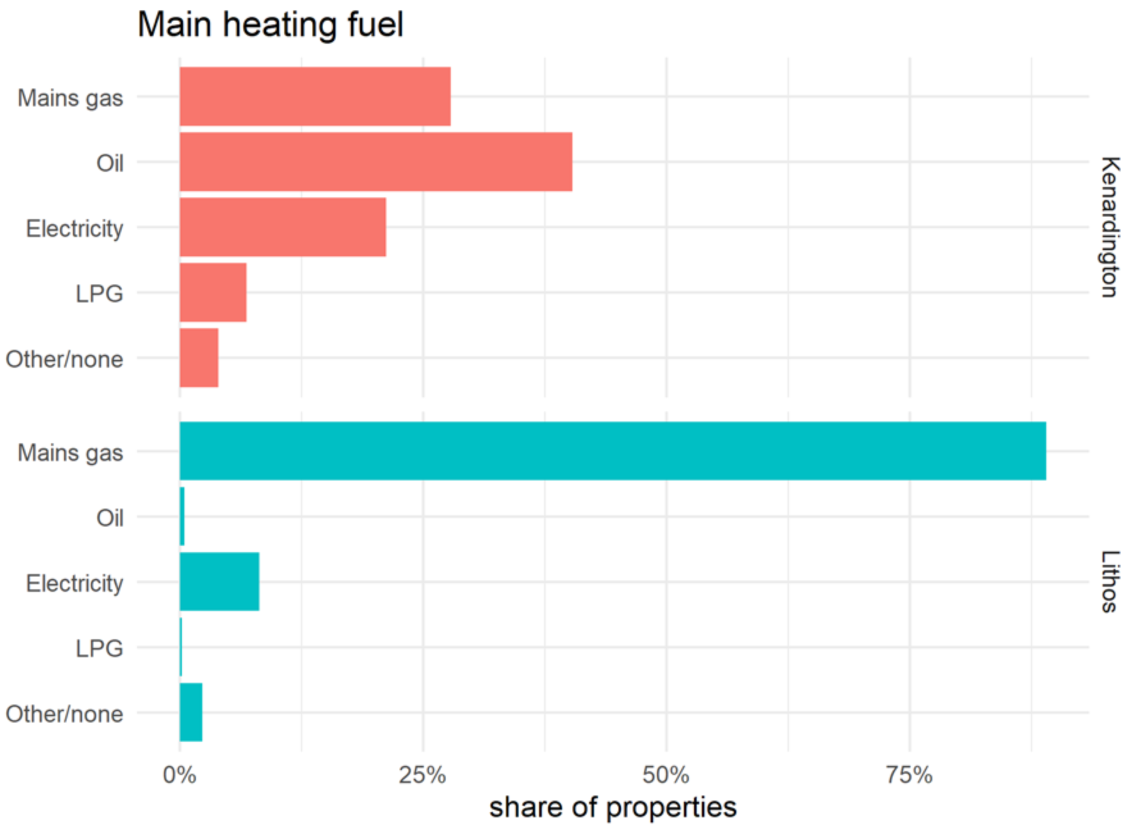
Not all energy costs are included (e.g. energy costs related to appliances, such as fridges and washing machines, are not included).

Heating makes up the largest share of energy bills at around 75%, followed by hot water at just below 20% and lighting at under 10%.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

A variety of heating fuels are used in Kenardington, while Lithos largely uses mains gas



Comment

This chart shows the share of properties served by each substation, categorised by the main fuel used for heating the property.

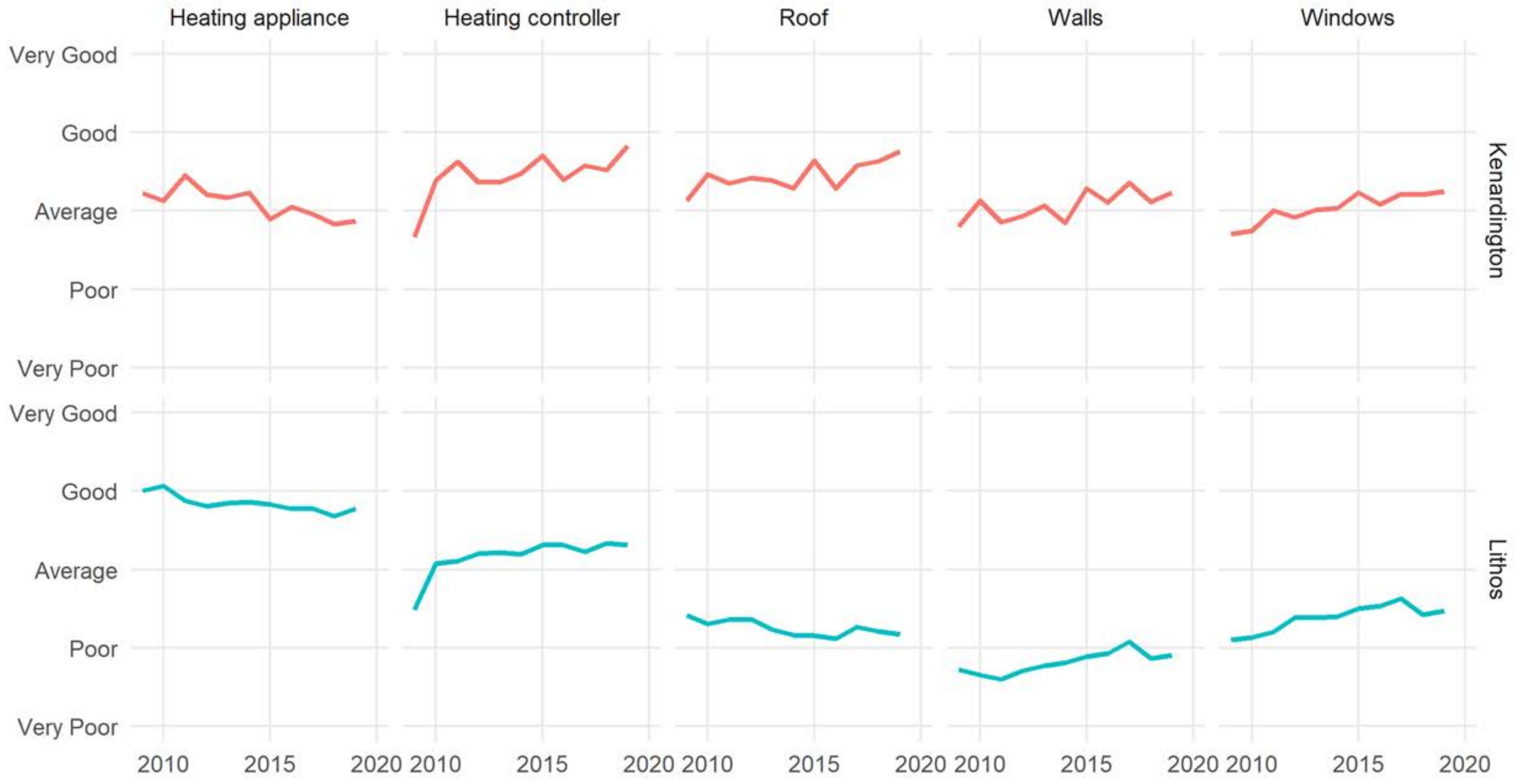
The *Other/none* category is predominately made up of missing data points.

In the Washington state data, 43% of homes use mains gas and 51% electricity for heating. That is a larger electricity share than for these two substations.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

IMPROVEMENT HAS BEEN MUTED IN MANY AREAS OF HEATING ENERGY EFFICIENCY

Average energy efficiency rating of heating measures over time



Flooring efficiency is not shown due to the small number of data points

Comment

This chart shows the average energy efficiency rating of the drivers of heating energy use over time.

Heating controllers, walls and windows show the most improvement in energy efficiency.

Kenardington's average ratings are higher than Lithos' for all measures except the heating appliance.

Washington state data, while not directly comparable due to rating differences, is shown in the appendix.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

Distribution of energy efficiency ratings for drivers of heating energy use

Floor/roof not rated where another property is below/above or floor assumed to be solid

Comment

This chart shows the distribution of energy efficiency ratings for drivers of heating energy use.

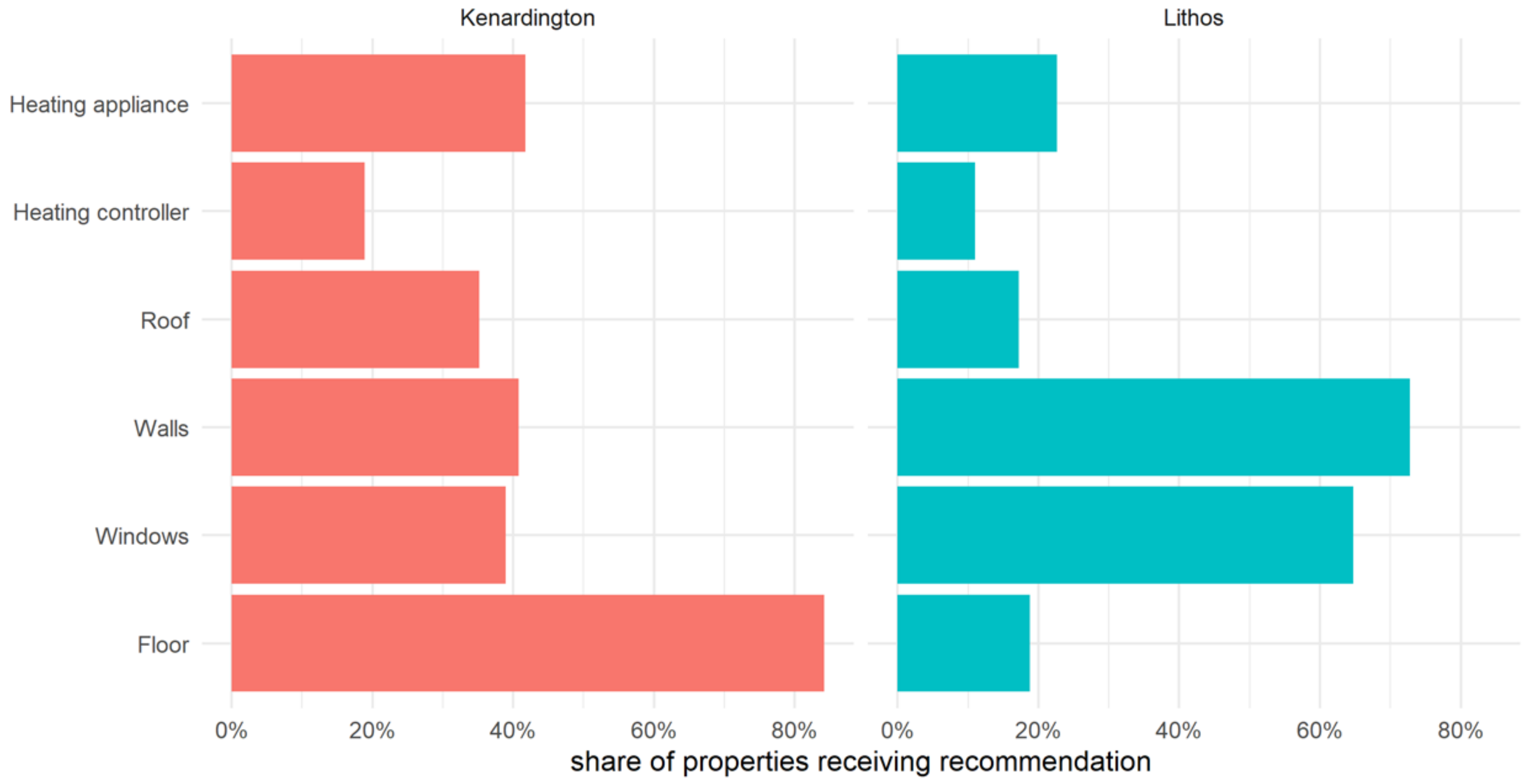
Walls and windows appear to be key opportunities to improve energy efficiency for Lithos as these are the measures with the most *Very Poor* and *Poor* ratings.

For Kenardington, walls is the measure with the most *Very Poor* and *Poor* ratings. Overall Kenardington has a smaller share of *Very Poor* and *Poor* ratings than Lithos.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

RECOMMENDATIONS FOR IMPROVING HEATING ENERGY EFFICIENCY VARY ACROSS THE SUBSTATIONS

Share of properties receiving a recommendation by measure – heating



Comment

This chart shows the share of properties whose EPC includes a recommendation to improve heating energy efficiency, categorised by measure.

For Lithos, around two-thirds of properties received recommendations to improve the energy efficiency of walls or windows.

For Kenardington, improving floor insulation was the most commonly recommended heating measure.

Note, however, that the CBA of each measure recommended in the EPCs is not necessarily positive.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

EXAMPLES OF MOST COMMON DESCRIPTIONS AND RATING SCORES

Most frequent description associated with each energy efficiency rating

Rating	Heating appliance	Heating controller	Roof	Walls	Windows
Very Poor	Room heaters, electric	Flat rate charging, no thermostatic control of room temperature	Pitched, no insulation (assumed)	Solid brick, as built, no insulation (assumed)	Single glazed
Poor	Electric storage heaters	Programmer and room thermostat	Pitched, limited insulation (assumed)	Cavity wall, as built, no insulation (assumed)	Partial double glazing
Average	Electric storage heaters	Programmer and room thermostat	Pitched, 100 mm loft insulation	Cavity wall, as built, partial insulation (assumed)	Fully double glazed
Good	Boiler and radiators, mains gas	Programmer, room thermostat and TRVs	Pitched, 200 mm loft insulation	Cavity wall, as built, insulated (assumed)	Fully double glazed
Very Good	Boiler and radiators, mains gas	Time and temperature zone control	Pitched, 300+ mm loft insulation	Solid brick, with internal insulation	High performance glazing

Comment

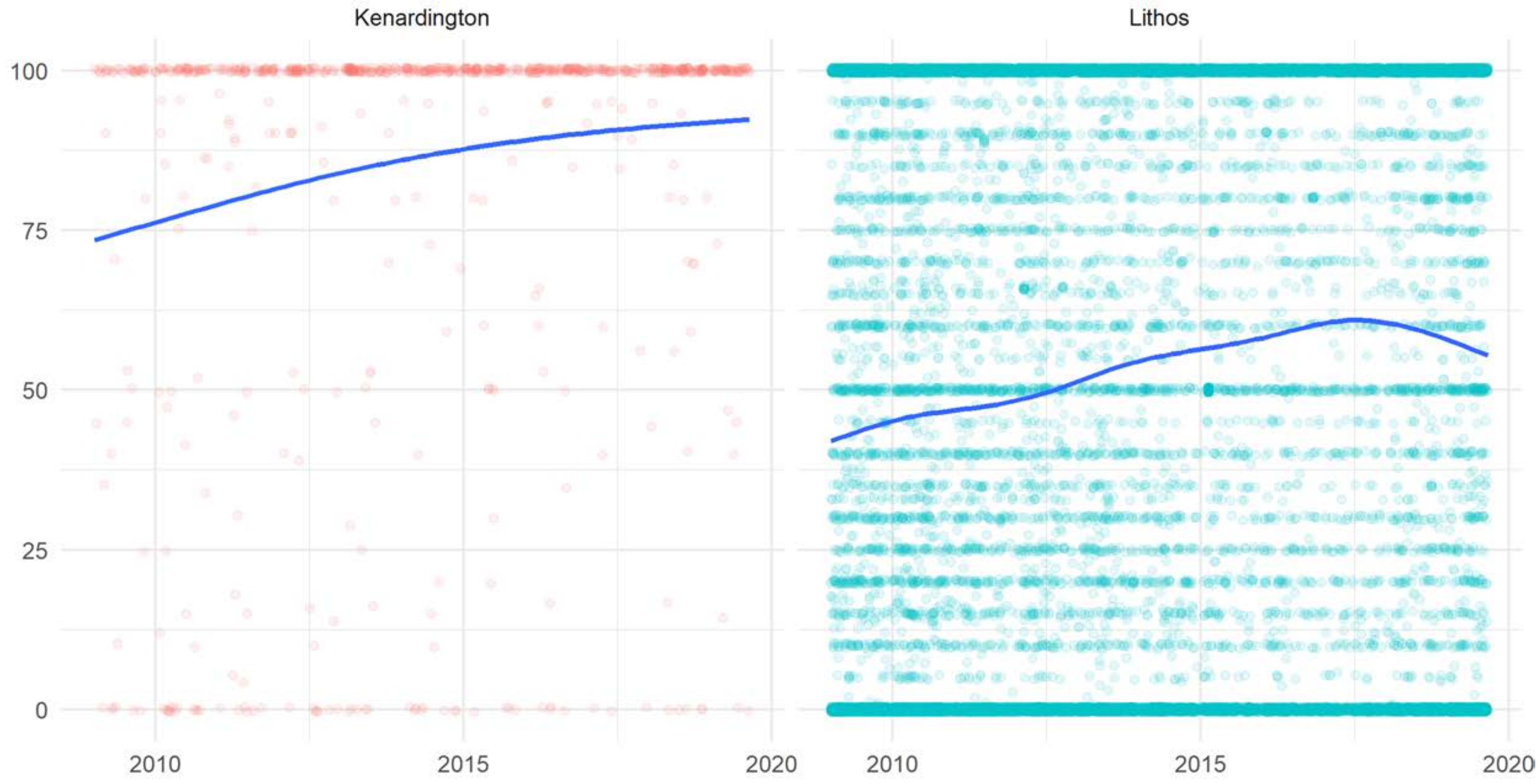
As context for the previous slides, this table shows the most common descriptions associated with each rating for each measure.

Note that heat pumps are not mentioned frequently enough to appear in this table.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

FOCUS ON MULTI-GLAZING : BECOMING INCREASINGLY PREVALENT, BUT UPTAKE VARIES SIGNIFICANTLY

Percentage of multi-glazing over time



Comment

This chart shows the percentage of windows that are multi-glazed for each EPC. The dots show individual EPCs, while the blue lines are (non-linear) lines of best fit.

Overall Kenardington has a significantly higher average percentage of multi-glazing, with most EPCs reporting 100% multi-glazing (shown by the cluster of dots at the top of the chart).

Lithos still has a significant share of properties with no multi-glazing (shown by the cluster of dots at the bottom of the chart).

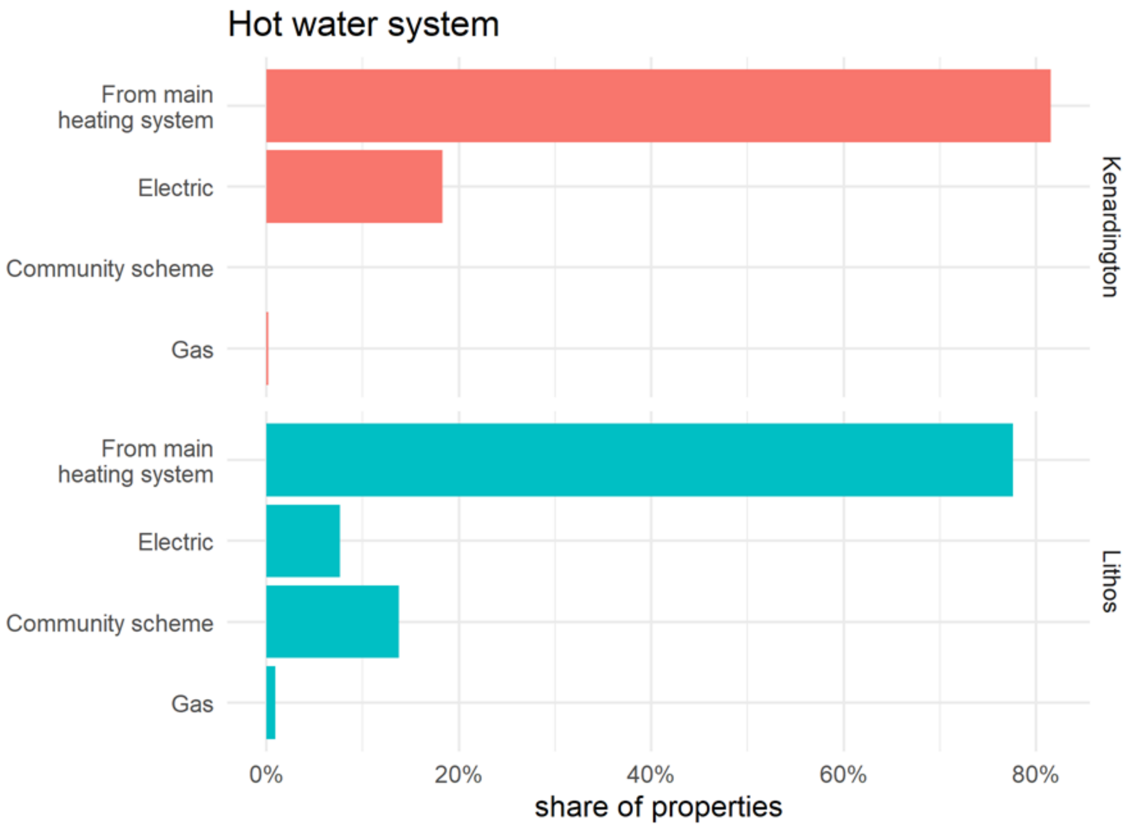
The Washington state data had a 91% multi-glazing share, in line with Kenardington's.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

HOT WATER SYSTEMS IN EACH SUBSTATION TERRITORY

Hot water is typically combined with the main heating system



Comment

This chart shows the share of properties served by each substation, categorised by the primary source of hot water to the property.

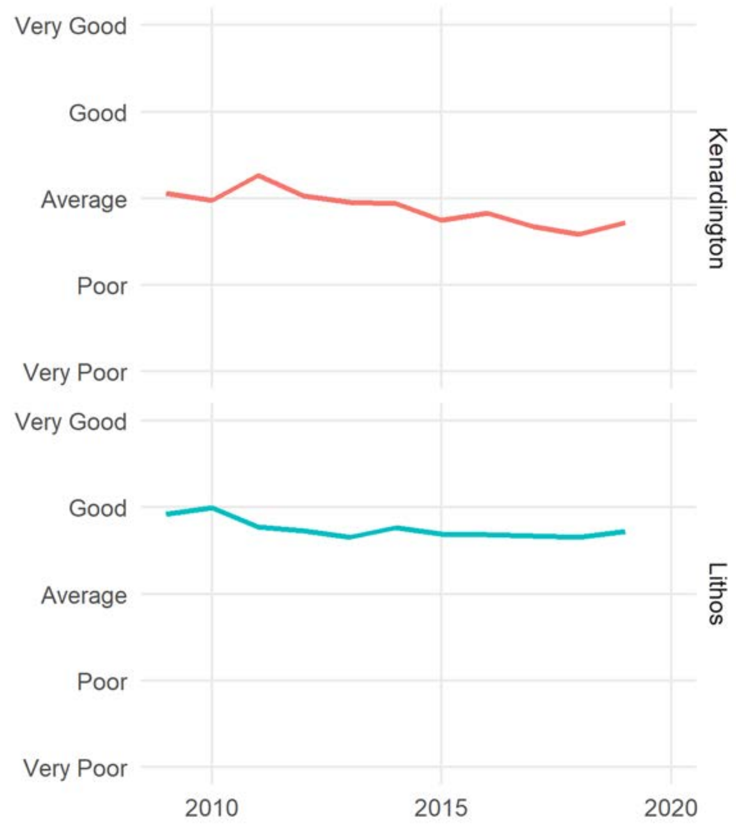
Electric covers both instantaneous and cylinder-based systems.

In the Washington state data, 40% of homes use mains gas and 59% electricity for hot water heating. That is a larger electricity share than for these two substations.

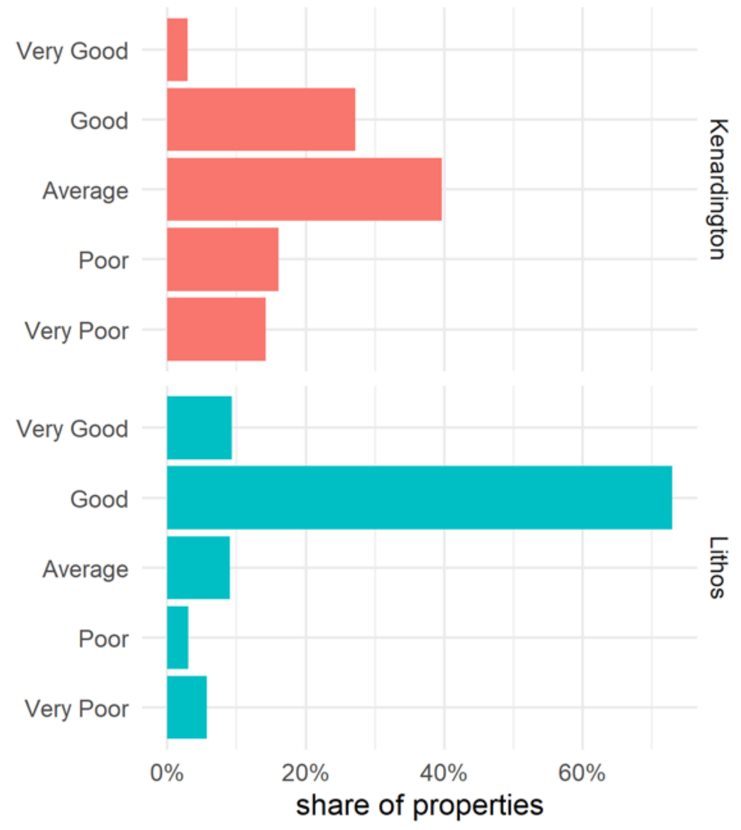
 ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

HOT WATER ENERGY EFFICIENCY HAS NOT SHOWN IMPROVEMENT OVER TIME

Average hot water energy efficiency over time



Distribution of hot water energy efficiency ratings



Comment

The left chart shows the average energy efficiency rating of the hot water heating appliance over time. The right chart shows the distribution of the individual ratings.

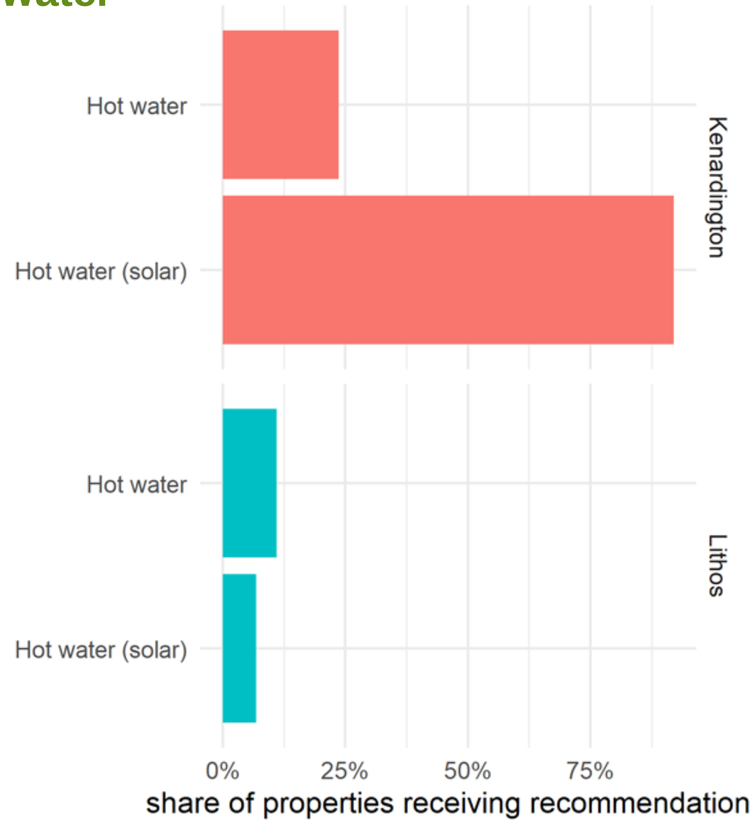
In this measure, Kenardington has more potential for improvement, driven by the wider variety of heating fuels used in its territory.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

KENARDINGTON, WITH MORE HOUSES AND BUNGALOWS, HAS GREATER POTENTIAL TO TAKE ADVANTAGE OF SOLAR WATER HEATING

Share of properties receiving a recommendation by measure – hot water



Comment

This chart shows the share of properties whose EPC includes a recommendation to improve hot water energy efficiency, categorised by measure.

For Kenardington, installing solar water heating was recommended for around 90% of properties.

For Lithos, this figure is closer to 10%, driven by the fact that flats and maisonettes (which account for 90% of properties there) do not typically have the roof space to install solar water heating.

Note, however, that the CBA of each measure recommended in the EPCs is not necessarily positive.

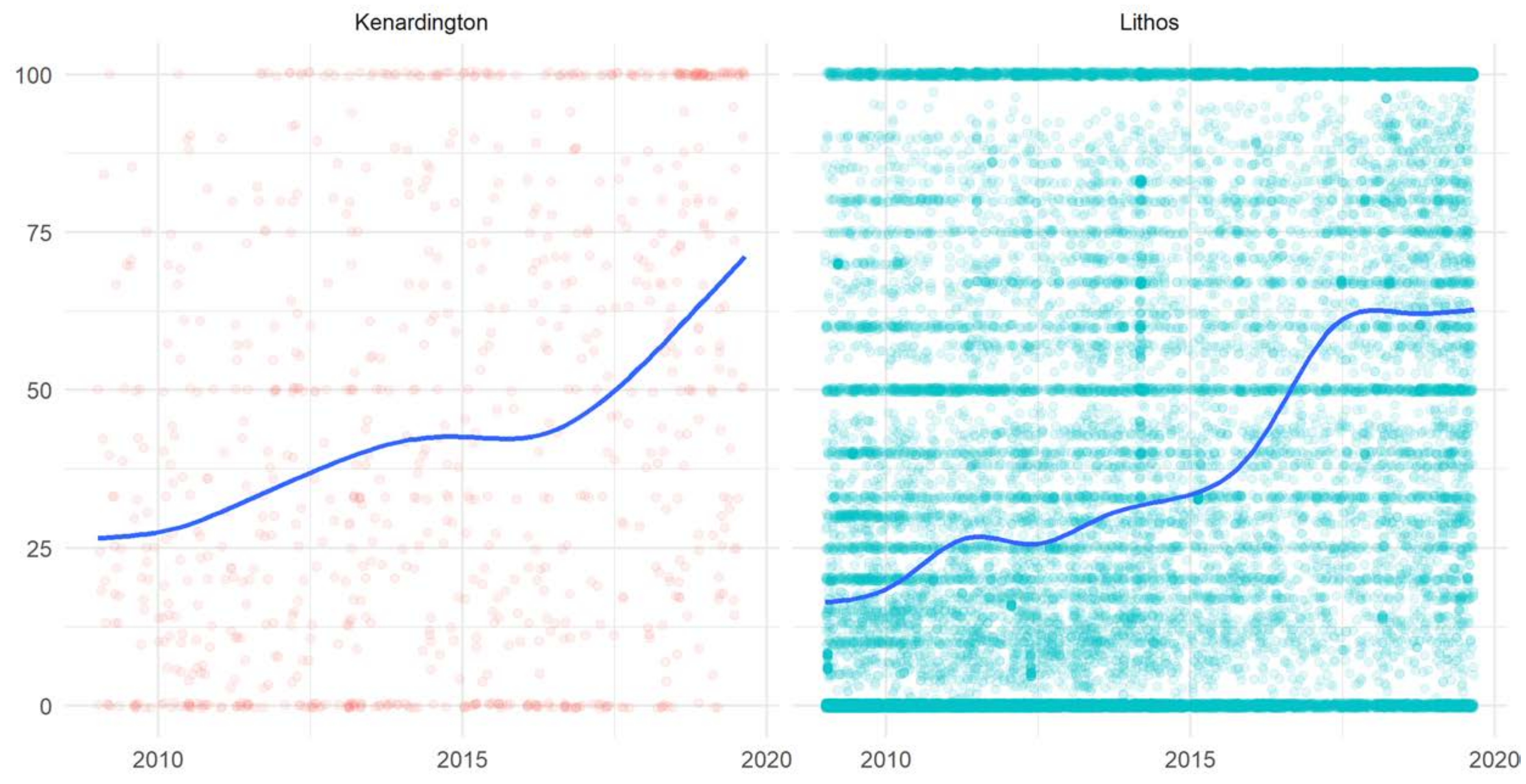
Similar statistics are shown in the appendix for the recommended installation of small-scale generation such as solar PV.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

UPTAKE OF LOW-ENERGY LIGHTING HAS GROWN STRONGLY, BUT SOME POTENTIAL STILL EXISTS

Percentage of low-energy lighting over time



Comment

This chart shows the percentage of light fittings that are classified as low-energy for each EPC. The dots show individual EPCs, while the blue lines are (non-linear) lines of best fit. Low-energy is not explicitly defined in the EPCs but we assume it includes LED and fluorescent lighting.

Both substations still have a significant share of properties with less than full uptake of low-energy lighting. This is particularly apparent for Lithos which has a clear cluster of dots at the bottom of the chart, indicating properties with no low-energy lighting at all.

The Washington state data has a 55% low-energy lighting share, slightly lower than these substations.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

SUMMARY AND CONCLUSIONS

COMBINING EPC ENERGY CONSUMPTION DATA WITH UKPN LOAD DATA TO GAUGE THE IMPACT OF ELECTRIFICATION

	Units	Kenardington	Lithos	Source
Average annual electricity consumption	kWh	4,682	4,248	UKPN
Average annual energy consumption	kWh	30,858	22,155	EPC
Average annual energy savings from implementing all EE measures	kWh	14,712	6,513	EPC
	%	48%	29%	
Average annual energy consumption after implementing all EE measures	kWh	16,146	15,642	EPC
Increase in annual electricity consumption if property were fully electrified – with EE measures	kWh	+11,464	+11,394	
	%	+245%	+268%	
Increase in annual electricity consumption if property were fully electrified – without EE measures	kWh	+26,176	+17,907	
	%	+559%	+422%	

Comment

This table combines consumption and savings data from UK Power Networks and the EPC register to provide indicative impacts on electricity demand from electrification of heat and implementation of energy efficiency measures.

EE has high technical potential with energy savings of 48% and 29% for domestic properties at the two substations respectively, but today most of the energy saved would be in the form of gas, not electricity.

With or without EE measures, electrification would have a very large impact on electricity consumption (and peak demand) – implying that average domestic consumption would increase at least 200% from today's levels. Domestic EV charging and other activities could add even more load.

 ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

CONCLUSIONS

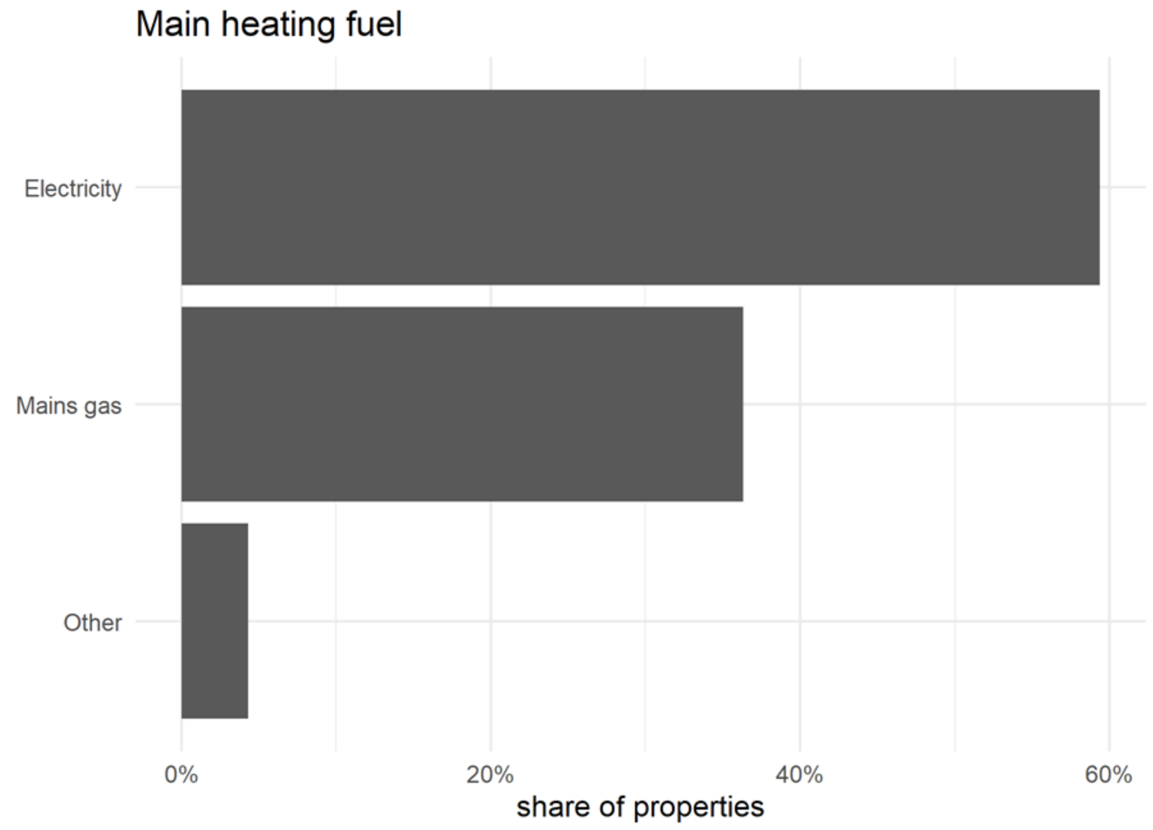
- The EPC register offers useful insight into the domestic properties served by the UKPN's Kenardington and Lithos Road substations. However, the EE recommendations and potential savings stated in the EPCs are rather crude and may not stand up to a proper cost-benefit analysis, so they should be considered indicative.
- Based on the EPC data, EE improvements have significant technical potential to reduce household energy demand. The measures vary significantly between the substation territories. For example:
  - For Lithos Road, located in an urban part of London and comprising mostly flats, the recommended EE measures concentrate on improving the insulation of walls and windows.
  - For Kenardington, a village made up of houses and bungalows, floor insulation is the most commonly recommended EE improvement. There may also be improvement opportunities from fuel-switching for heating and hot water.
- At present, most of the energy savings would be in the form of lower natural gas consumption – not electricity – given the importance of gas for heating, which accounts for approximately 75% of energy bills.
- The potential increase in electricity demand due to electrification of heating and hot water would be several times larger than the potential reduction in demand from EE improvements. EE therefore cannot replace traditional reinforcement entirely, but could be a complementary addition to UKPN's toolkit.
- While the EPC dataset can provide an indication of technical EE potential, further research and trials are required to fully understand the economic potential, deployment costs and customer adoption rates of EE in UKPN's licence areas.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

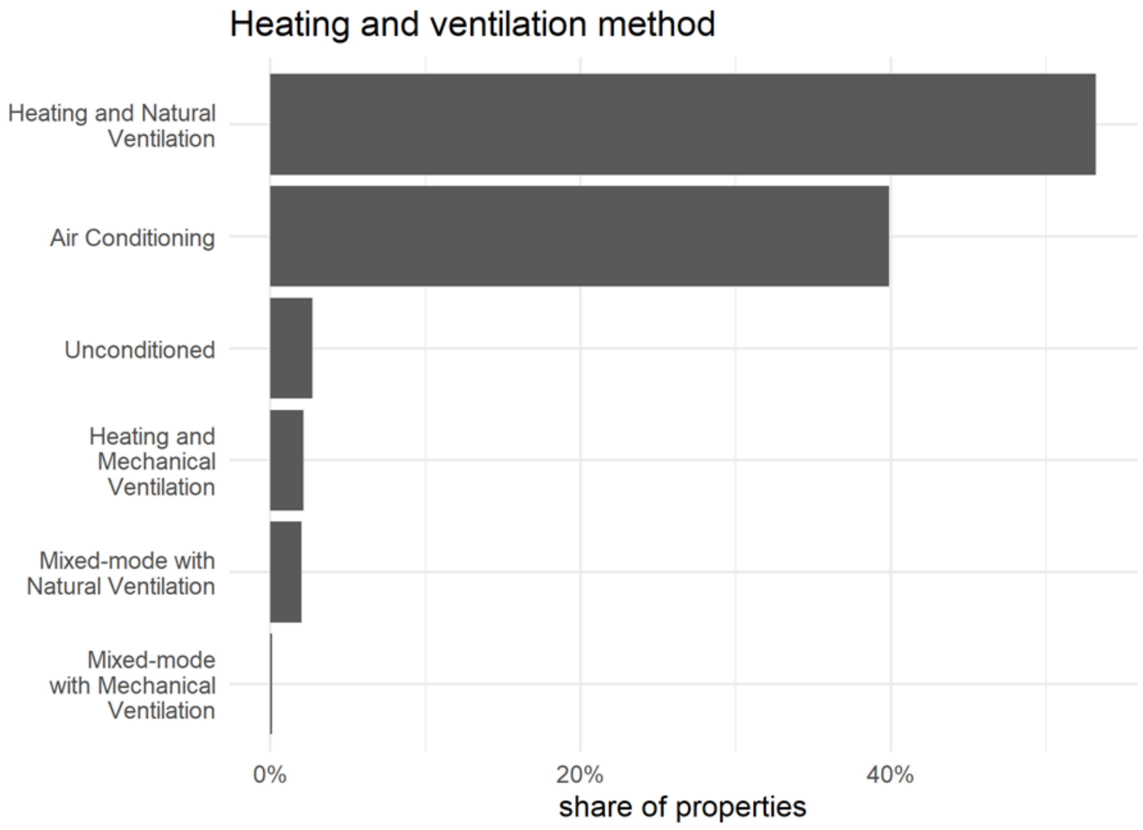
APPENDIX

NAVIGANT
A Guidehouse Company

Electricity is more prevalent as a heating fuel in the non-domestic sector



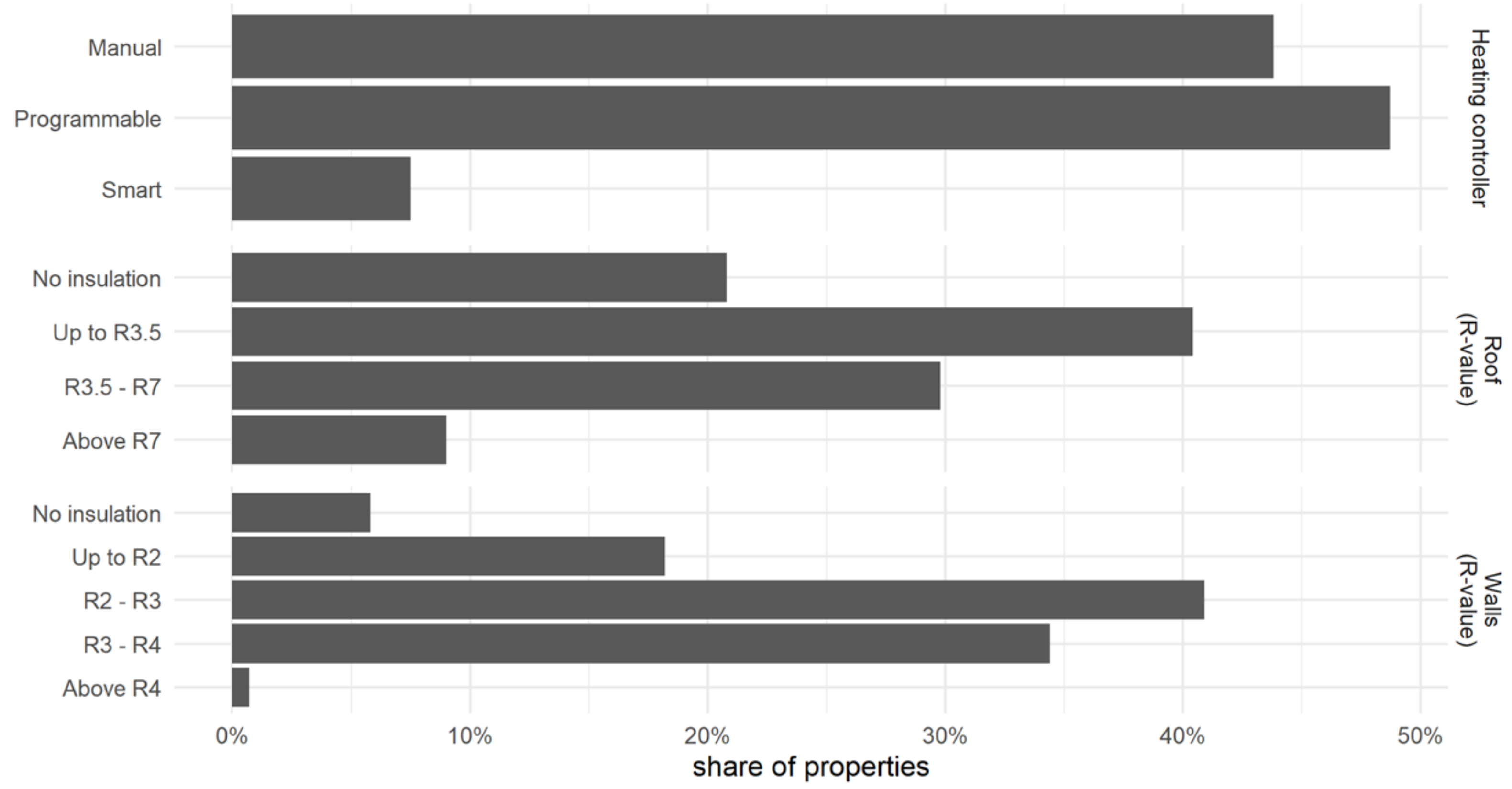
Just under half of non-domestic properties also use energy for cooling



Data here covers both substations. There are 1,005 non-domestic properties in Lithos and 36 in Kenardington.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

HEATING ENERGY USE DRIVERS IN WASHINGTON STATE DATASET



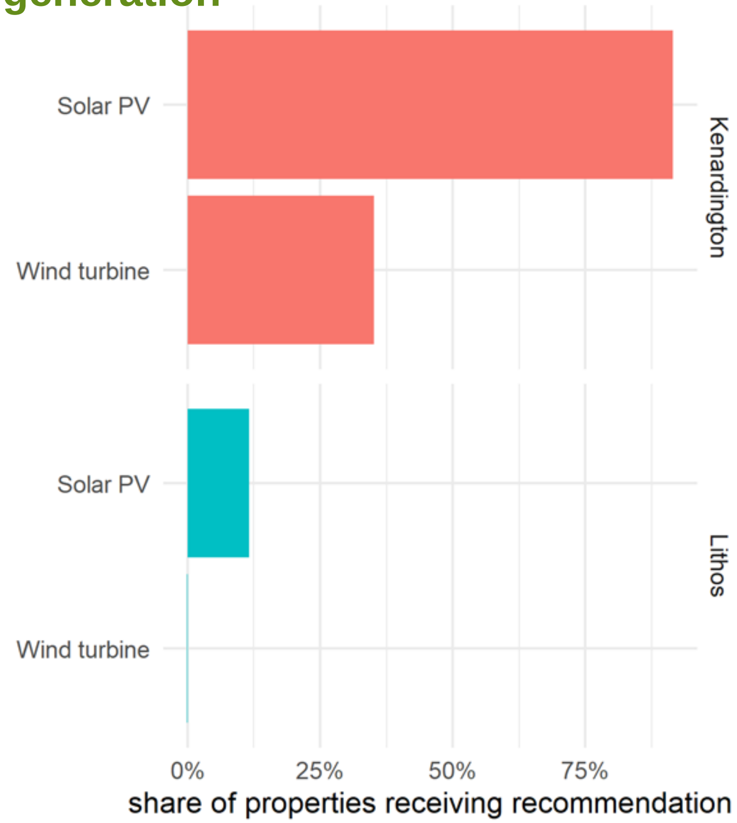
The categories used in the Washington state dataset are not directly comparable with those used in the EPCs

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

KENARDINGTON, WITH MORE HOUSES AND BUNGALOWS, HAS GREATER POTENTIAL TO INSTALL SMALL-SCALE GENERATION

Share of properties receiving a recommendation by measure – generation



Comment

This chart shows the share of properties whose EPC includes a recommendation to install small-scale generation, by technology.

For Kenardington, installing solar PV was recommended for around 90% of properties.

For Lithos, this figure is closer to 10%, driven by the fact that flats and maisonettes (which account for 90% of properties there) do not typically have the roof space to install solar PV.

Note, however, that the CBA of each measure recommended in the EPCs is not necessarily positive.

 / ©2019 NAVIGANT CONSULTING, INC., N/K/A GUIDEHOUSE INC. ALL RIGHTS RESERVED

NAVIGANT
A Guidehouse Company

CONTACTS

OLIVER MCSHANE
Managing Consultant
Oliver.McShane@navigant.com

MARK LIVINGSTONE
Director
Mark.Livingstone@navigant.com

GEOFFREY HO
Associate Director
Geoffrey.Ho@navigant.com

NAVIGANT
A Guidehouse Company