



## Knowledge Exchange Seminar Series (KESS)

...is a forum that encourages debate on a wide range of research findings, with the overall aim of promoting evidence-based policy and law-making within Northern Ireland



# Mapping Fuel Poverty Across Northern Ireland

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# Definition

- Term “fuel poverty” appeared in 1979 [1]
- A household is fuel poor when it spends at least 10% of household income on energy services [2]
- “Actual spend” vs “Needs to spend”
- “Needs to spend” was 21% higher than “Actual spend” for England in 2009 [3]
- Figures are higher for Scotland and NI (coldest UK regions) [4]

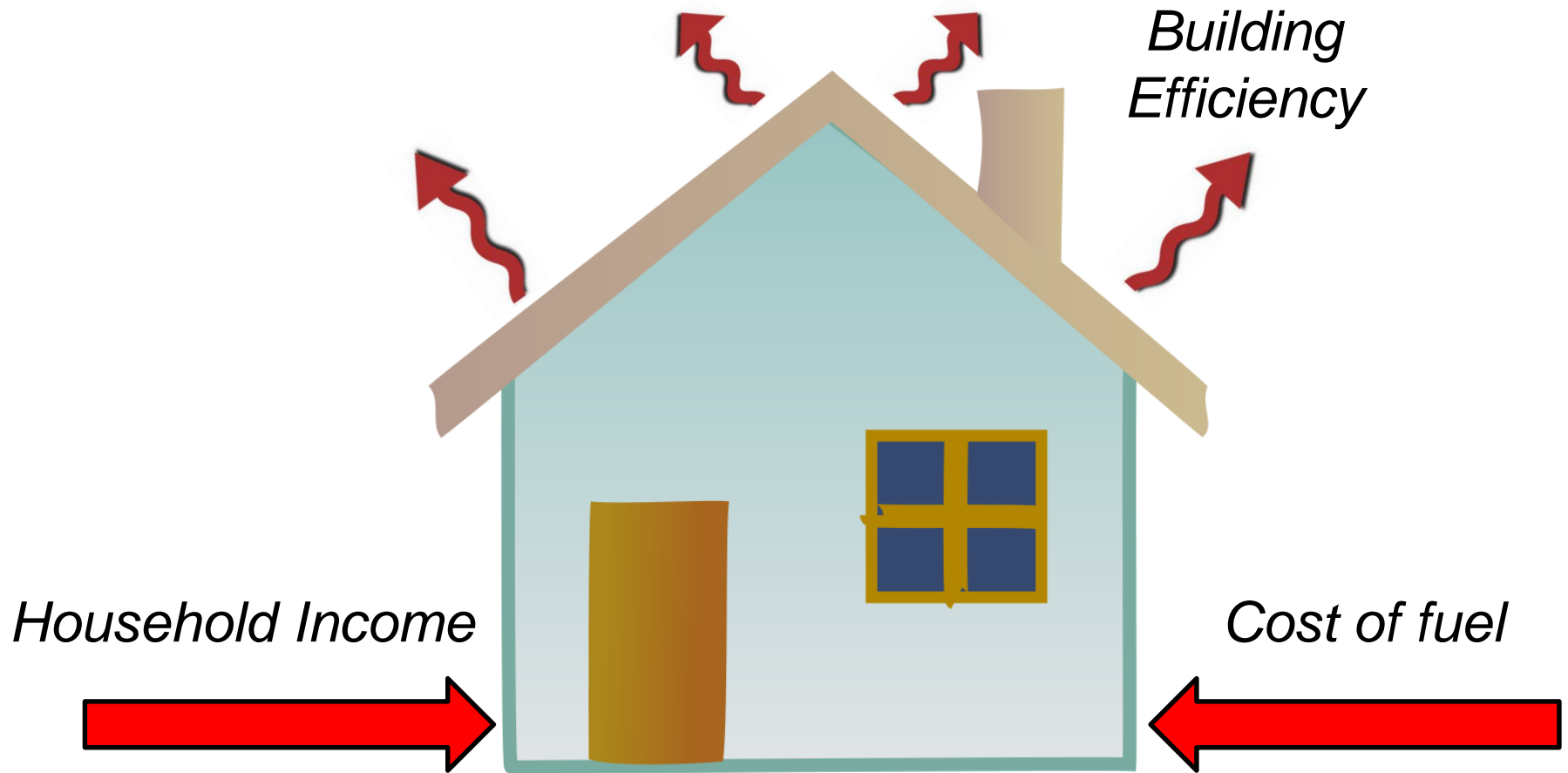
# Prevalence

- Fuel poverty is prevalent across Europe
- Homes in Southern Europe (e.g. Portugal and Greece) and Eastern Europe (e.g. Bulgaria and Romania) had high rates of fuel poverty [5]
- Denmark, Finland and Sweden have low rates of fuel poverty [5]
- UK and Ireland have high rates of fuel poverty

# Impact

- Fuel poverty has a significant impact on health
- Living in cold, often damp, homes impacts on physical and mental health [7]
- Excess Winter Mortality (EWM) rates are high in cold homes
- Stroke, heart attacks, respiratory illness, arthritis, lower immunity
- Depression, anxiety and “spatial shrinkage”

# Causes



# Identifying the fuel poor

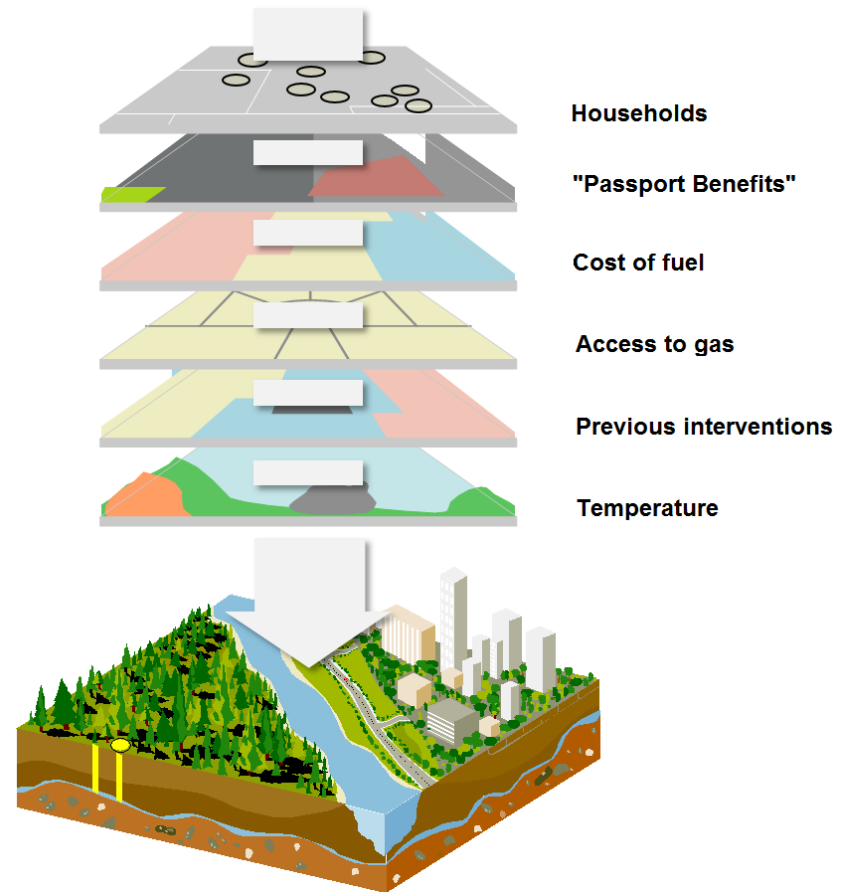
- Fuel poverty interventions were targeted to specific groups [6]:
  - “Passport Benefits” e.g. Pension Credit
  - “Vulnerable” occupant e.g. >60, <16, disability
- Many at-risk people missed e.g. a 58 year old with no dependent children and no disability
- “Working poor”
- Approach ignores building efficiency

# Identifying the fuel poor

- Census zones have comprehensive data available (~125 homes) that enables *area-based targeting*
- Datasets with wide spatial coverage enable targeting across regional scales
- Geography provides a framework to *integrate* data and also shows *where* to provide interventions
- Geographic Information Systems (GIS) facilitate this improved targeting approach

# Identifying the fuel poor

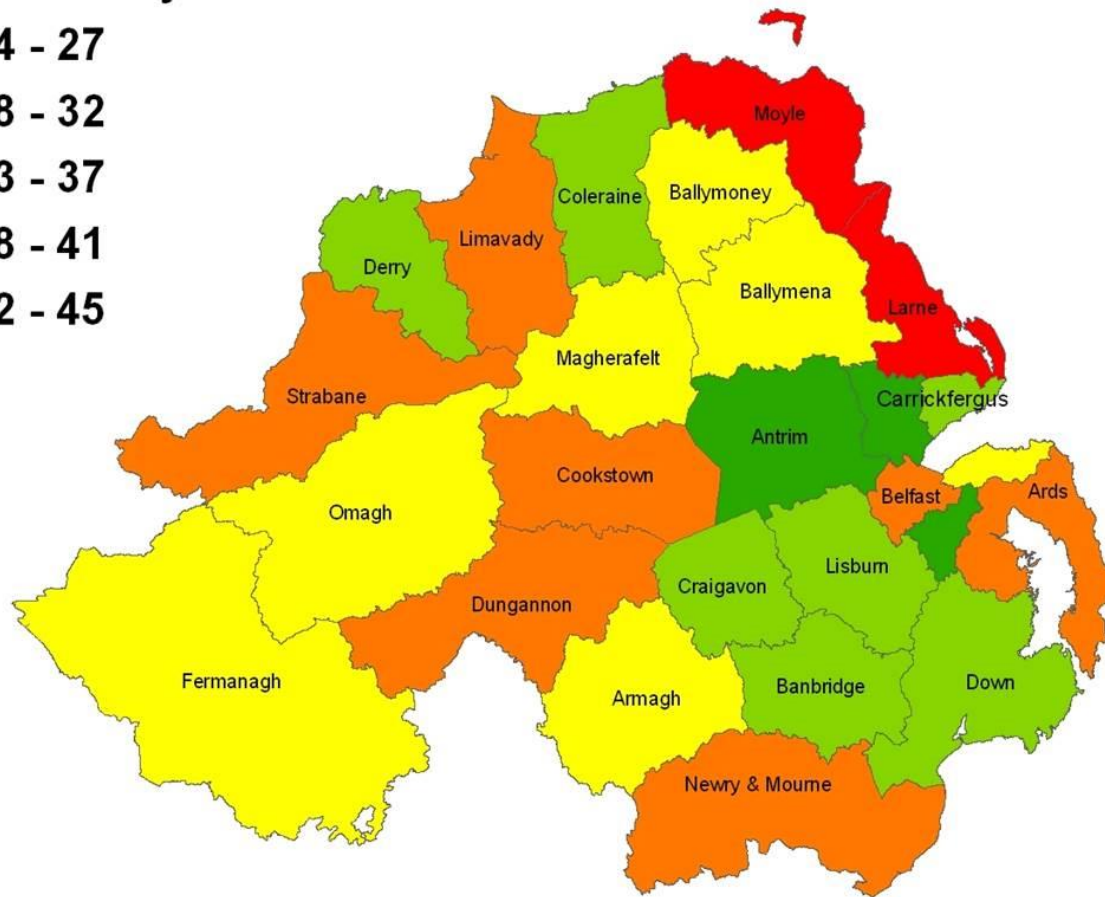
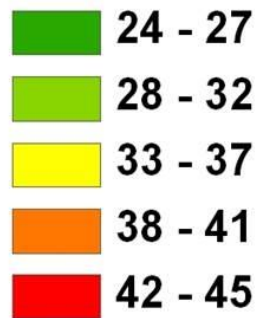
- GIS stacks layers of information together to represent complex problems
- Layers are stacked together based on location e.g. postcode, house number, IP address, latitude/longitude
- The final picture provides a greater insight than one layer alone



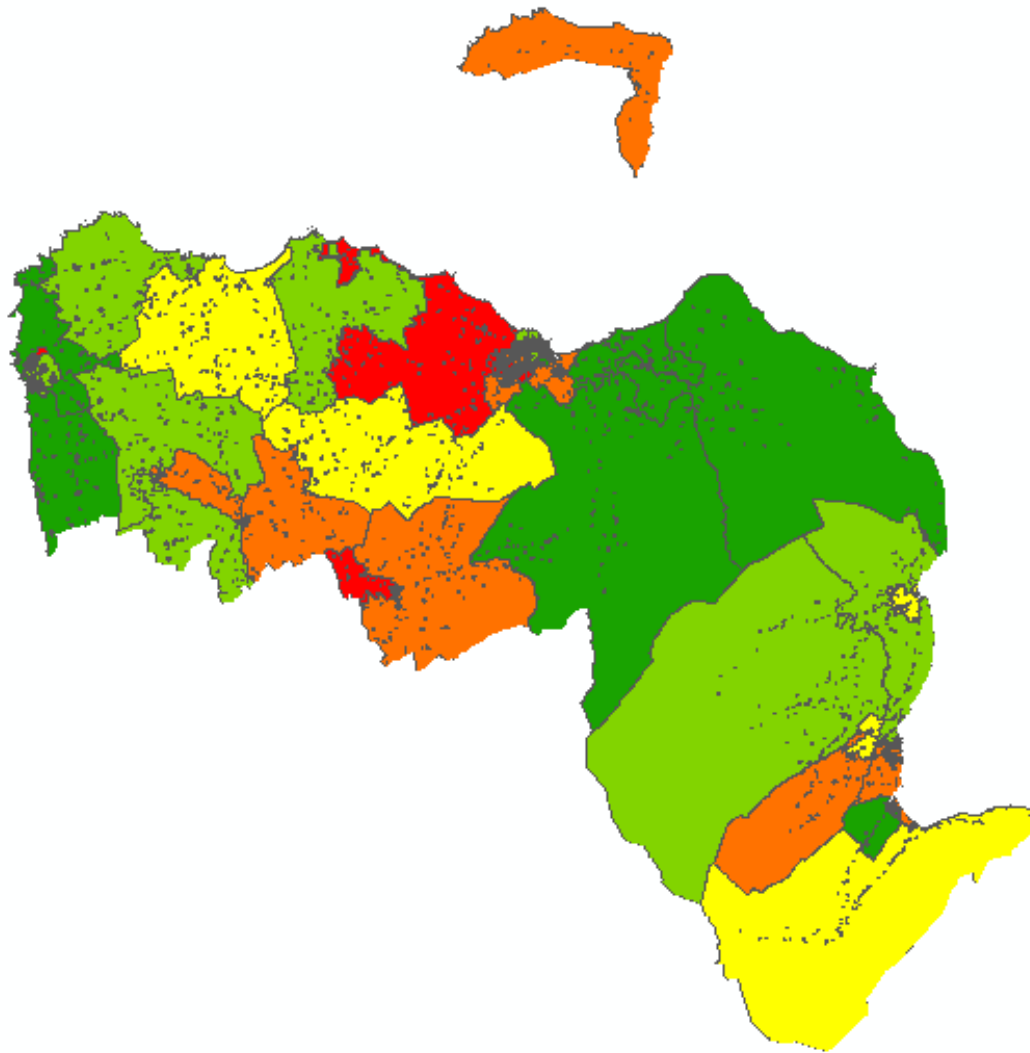


## District Council Areas

### % Fuel Poverty



*Department for Social Development*



Moyle District  
Council Area



Ward level



COA level



Buildings

# Oil price mapping

Prices for  
13/Jan/11

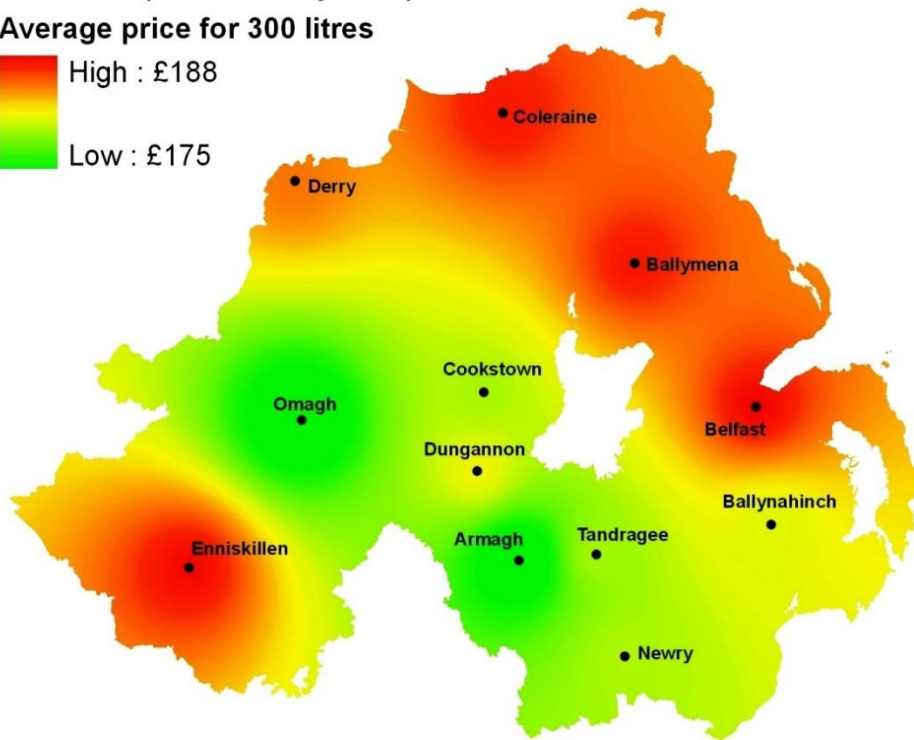
Area	300	500	900
Armagh	£175.00	£277.50	£482.50
Ballymena	£187.00	£286.00	£494.00
Ballynahinch	£182.00	£278.00	£491.00
Belfast	£187.60	£289.34	£505.30
Coleraine	£187.00	£287.50	£497.00
Cookstown	£181.00	£280.00	£489.00
Derry	£185.00	£278.00	£480.00
Dungannon	£182.50	£275.50	£475.00
Enniskillen	£187.50	£281.33	£480.67
Omagh	£175.00	£280.00	£479.00
Newry	£181.13	£280.71	£490.62
Tandragee	£181.00	£285.50	£496.00

# Oil price mapping

- Towns

Oil Prices (13th January 2011)

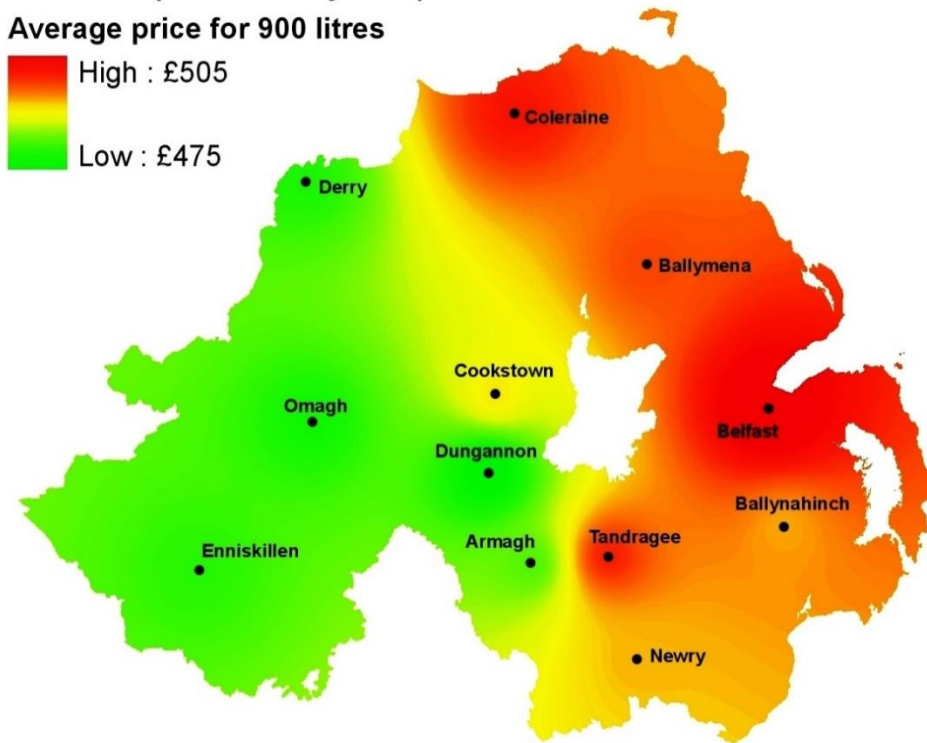
Average price for 300 litres



- Towns

Oil Prices (13th January 2011)

Average price for 900 litres



*Northern Ireland Consumer Council*



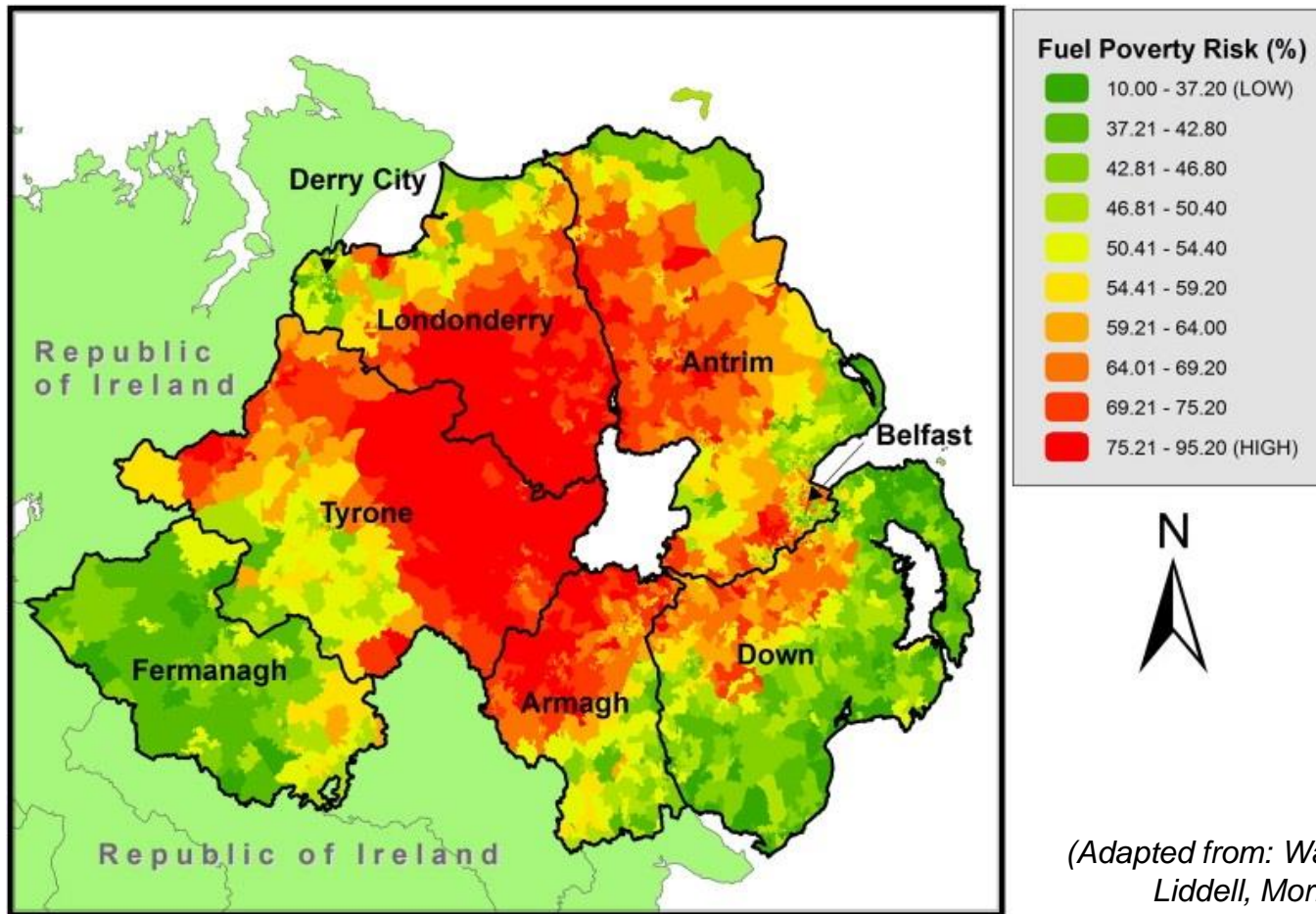
- Small village, hamlet & open countryside
- 74% of homes built > 2000
- 65% of homes are detached
- Average SAP score = 60.5
- Higher than average price of £360 per 900 litres of oil
- Gas is unavailable
- Low poverty score
- Higher temperature area
- 20% <16 and 20% >65+ (2011)



# Example properties from Ballywalter Small Area



# Approach



# Application

- Funding provided (OFMDFM and DSDNI) to work with 19 Councils to verify area-based targeting
- 2,145 households surveyed by Council staff
- Determine actual levels of fuel poverty and determine eligibility for assistance
- GIS area-based model accuracy was above 80%
- Majority of households in areas were fuel poor, with many in severe fuel poverty.



# Potential

- Area-based targeting is now being applied to *food poverty* at UU
- Access to retailers, food banks, cost of shopping basket, deprivation etc
- GIS enables a wide range of variables to be integrated, weighted and visualised to efficiently target assistance and reduce waste
- Rise of “big data” and open government fuels future research

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# References

- **[1]** Isherwood, B.C., Hancock, R.M. (1979) Household Expenditure on Fuel: Distributional Aspects Economic Adviser's Office, DHSS, London
- **[2]** Boardman, B. (1991) Fuel Poverty: From Cold Homes to Affordable Warmth. Belhaven Press, London
- **[3]** DECC (2011) Annual Report on Fuel Poverty Statistics 2011, Department of Energy and Climate Change, London
- **[4]** Liddell, C., Morris, C., McKenzie, P., Rae, G. (2011) Defining Fuel Poverty in Northern Ireland: A Preliminary Review, University of Ulster, Coleraine, Northern Ireland
- **[5]** Thomson, H. & Snell, C. (2013). Quantifying the prevalence of fuel poverty across the European Union. Energy Policy. 52. 563–572.
- **[6]** NIAO (Northern Ireland Audit Office) Warm Homes: Tackling Fuel Poverty, The Stationery Office, Belfast (2008)
- **[7]** Liddell, C., Morris., C. (2010) Fuel poverty and human health: A review of recent evidence. Energy Policy/ 38. 2987-2997



Northern Ireland  
Assembly



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