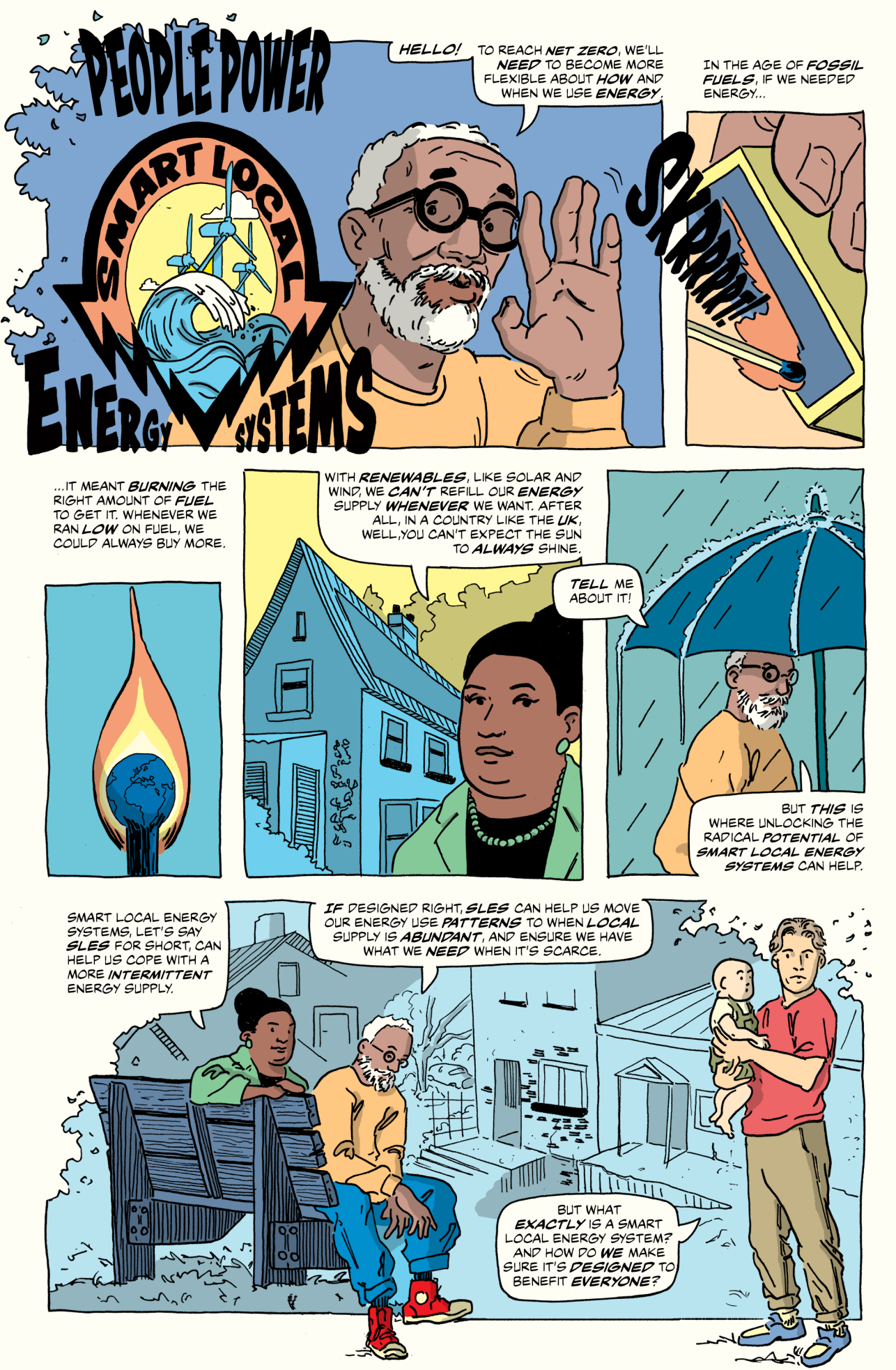
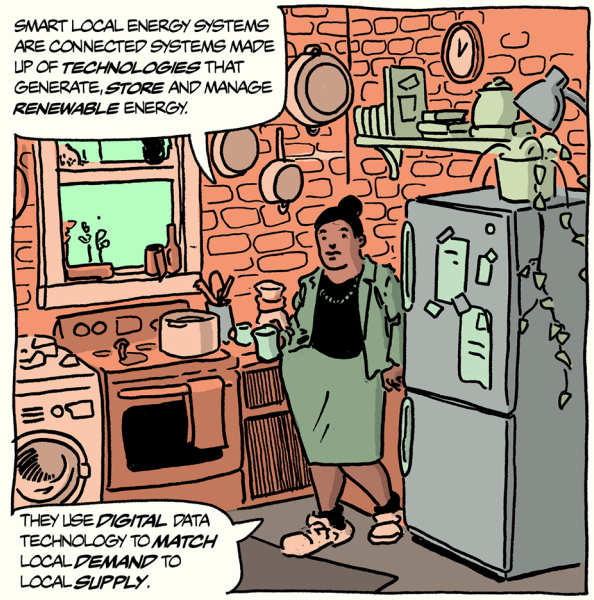
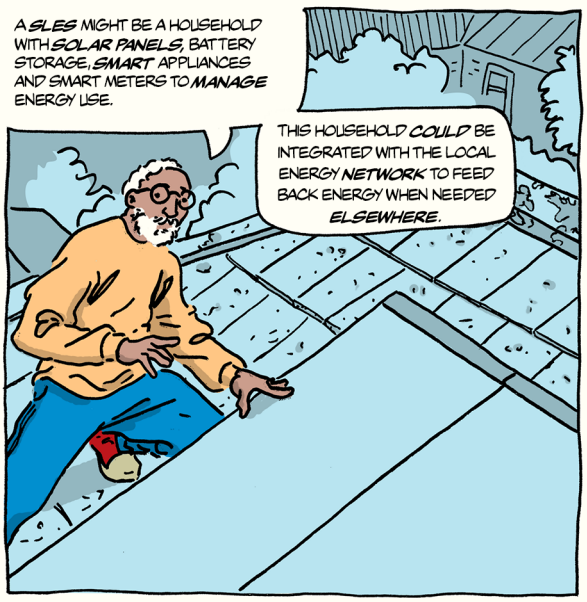
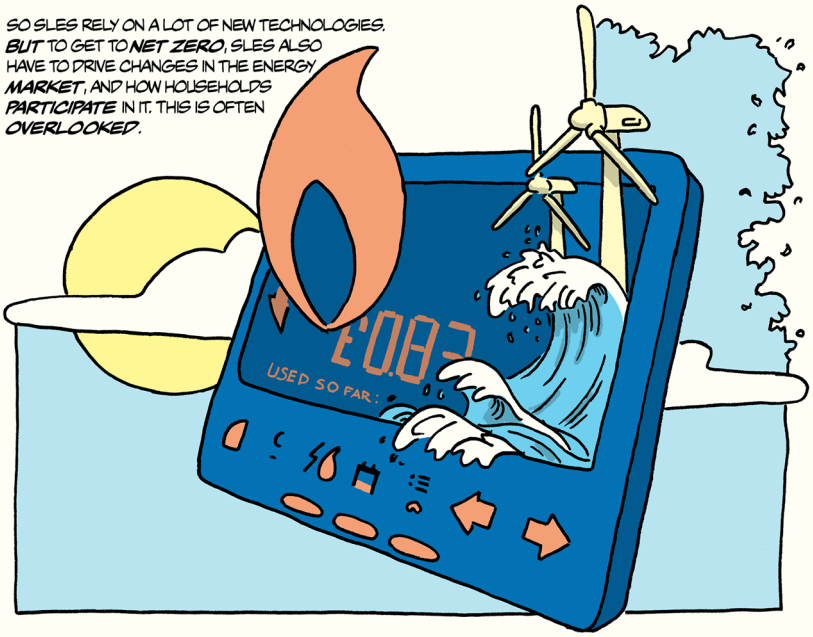

PEOPLE POWER
SMART LOCAL ENERGY SYSTEMS
HELLO!
TO REACH NET ZERO, WE'LL NEED TO BECOME MORE FLEXIBLE ABOUT HOW AND WHEN WE USE ENERGY.
IN THE AGE OF FOSSIL FUELS, IF WE NEEDED ENERGY...
SKRRRT!
...IT MEANT BURNING THE RIGHT AMOUNT OF FUEL TO GET IT. WHENEVER WE RAN LOW ON FUEL, WE COULD ALWAYS BUY MORE.
WITH RENEWABLES, LIKE SOLAR AND WIND, WE CAN'T REFILL OUR ENERGY SUPPLY WHENEVER WE WANT. AFTER ALL, IN A COUNTRY LIKE THE UK, WELL, YOU CAN'T EXPECT THE SUN TO ALWAYS SHINE.
TELL ME ABOUT IT!
BUT THIS IS WHERE UNLOCKING THE RADICAL POTENTIAL OF SMART LOCAL ENERGY SYSTEMS CAN HELP.
SMART LOCAL ENERGY SYSTEMS, LET'S SAY SLES FOR SHORT, CAN HELP US COPE WITH A MORE INTERMITTENT ENERGY SUPPLY.
IF DESIGNED RIGHT, SLES CAN HELP US MOVE OUR ENERGY USE PATTERNS TO WHEN LOCAL SUPPLY IS ABUNDANT, AND ENSURE WE HAVE WHAT WE NEED WHEN IT'S SCARCE.
BUT WHAT EXACTLY IS A SMART LOCAL ENERGY SYSTEM? AND HOW DO WE MAKE SURE IT'S DESIGNED TO BENEFIT EVERYONE?

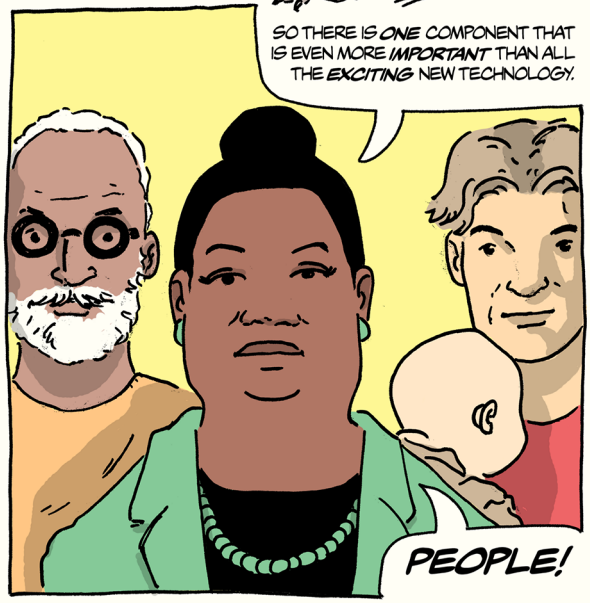

SMART LOCAL ENERGY SYSTEMS ARE CONNECTED SYSTEMS MADE UP OF TECHNOLOGIES THAT GENERATE, STORE AND MANAGE RENEWABLE ENERGY.
THEY USE DIGITAL DATA TECHNOLOGY TO MATCH LOCAL DEMAND TO LOCAL SUPPLY.

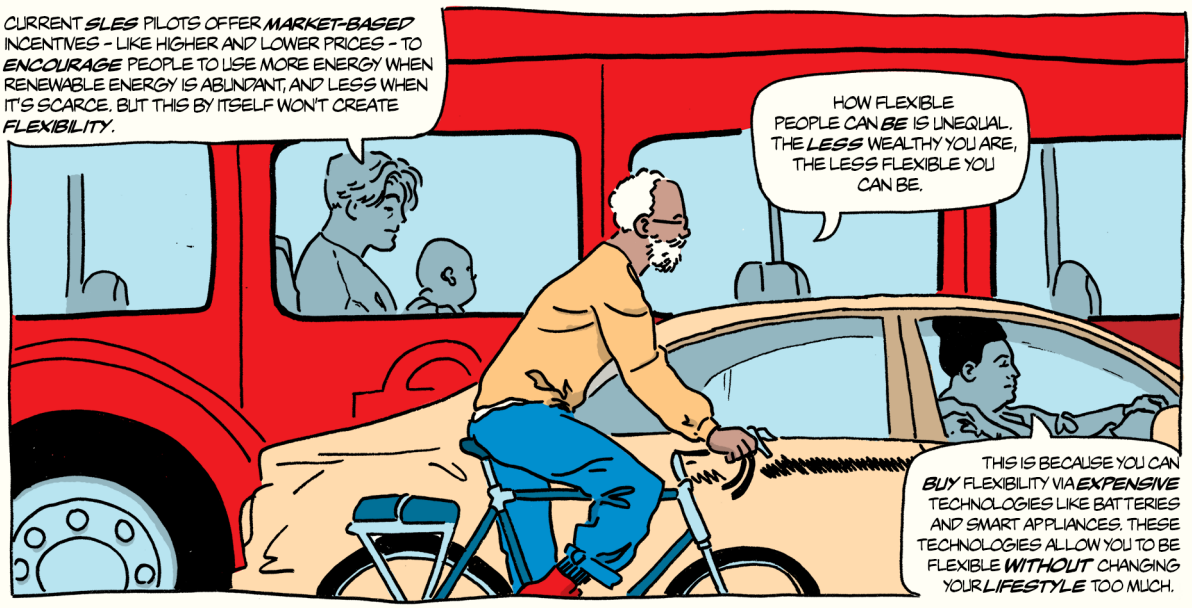

A SLES MIGHT BE A HOUSEHOLD WITH SOLAR PANELS, BATTERY STORAGE, SMART APPLIANCES AND SMART METERS TO MANAGE ENERGY USE.
THIS HOUSEHOLD COULD BE INTEGRATED WITH THE LOCAL ENERGY NETWORK TO FEED BACK ENERGY WHEN NEEDED ELSEWHERE.

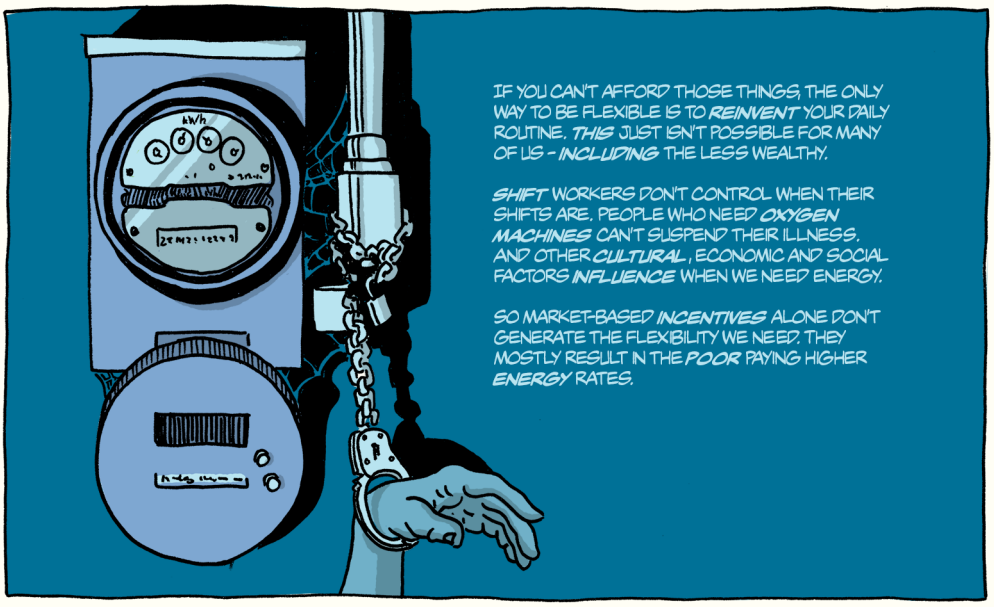

SO SLES RELY ON A LOT OF NEW TECHNOLOGIES. BUT TO GET TO NET ZERO, SLES ALSO HAVE TO DRIVE CHANGES IN THE ENERGY MARKET, AND HOW HOUSEHOLDS PARTICIPATE IN IT. THIS IS OFTEN OVERLOOKED.
£0.82
USED SO FAR:


ENERGY COMPANIES ARE SLOW TO RECOGNISE THAT IT'S NOT TECHNOLOGY THAT DRIVES SLES-- IT'S PEOPLE BECOMING MORE FLEXIBLE.

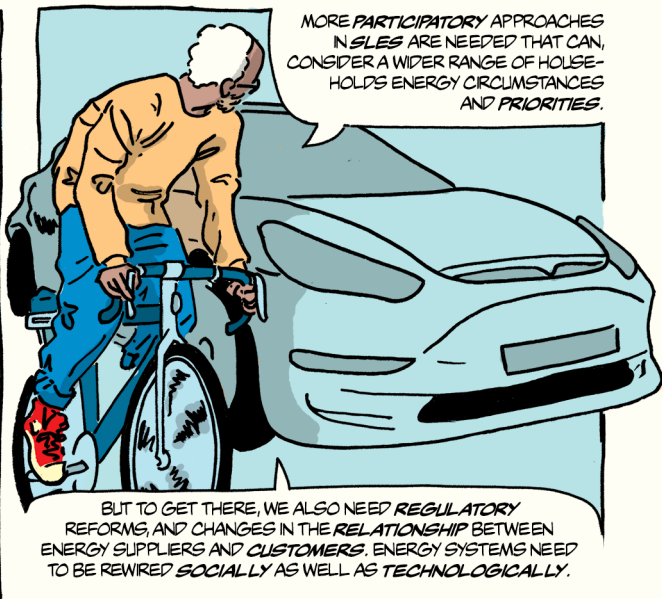

TECHNOLOGY CAN MAKE IT EASIER FOR US TO BE FLEXIBLE AND MANAGE THOSE TIMES WHEN WE CANNOT FLEX. BUT ULTIMATELY, SLES CANNOT WORK WITHOUT HOUSEHOLDS PARTICIPATING IN USING ENERGY FLEXIBLY.

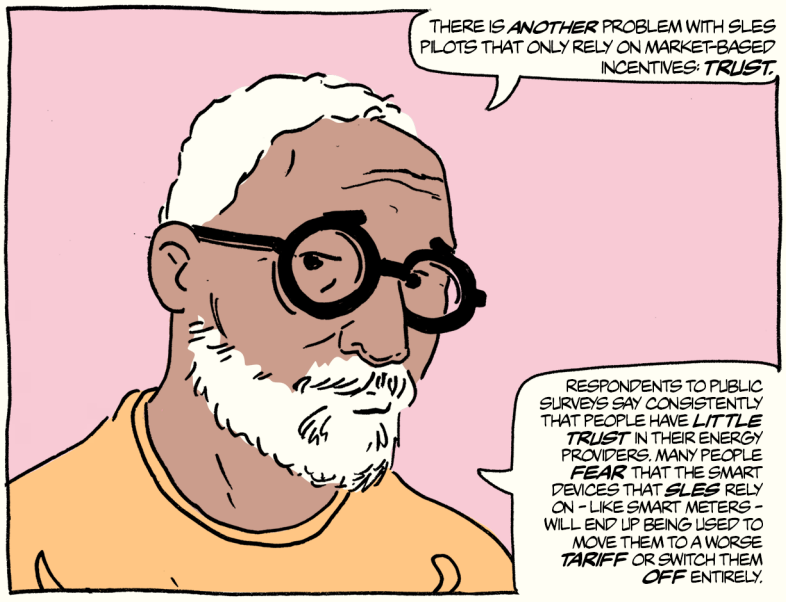

SO THERE IS ONE COMPONENT THAT IS EVEN MORE IMPORTANT THAN ALL THE EXCITING NEW TECHNOLOGY.
PEOPLE!

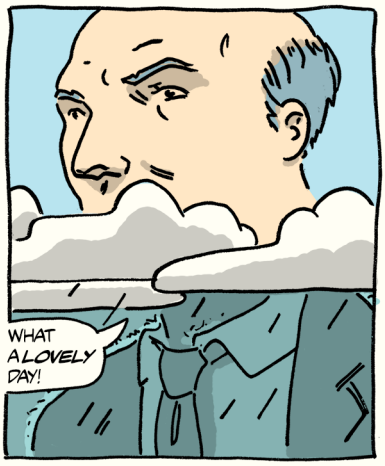

CURRENT SLES PILOTS OFFER MARKET-BASED INCENTIVES - LIKE HIGHER AND LOWER PRICES - TO ENCOURAGE PEOPLE TO USE MORE ENERGY WHEN RENEWABLE ENERGY IS ABUNDANT, AND LESS WHEN IT'S SCARCE. BUT THIS BY ITSELF WON'T CREATE FLEXIBILITY.
HOW FLEXIBLE PEOPLE CAN BE IS UNEQUAL. THE LESS WEALTHY YOU ARE, THE LESS FLEXIBLE YOU CAN BE.
THIS IS BECAUSE YOU CAN BUY FLEXIBILITY VIA EXPENSIVE TECHNOLOGIES LIKE BATTERIES AND SMART APPLIANCES. THESE TECHNOLOGIES ALLOW YOU TO BE FLEXIBLE WITHOUT CHANGING YOUR LIFESTYLE TOO MUCH.

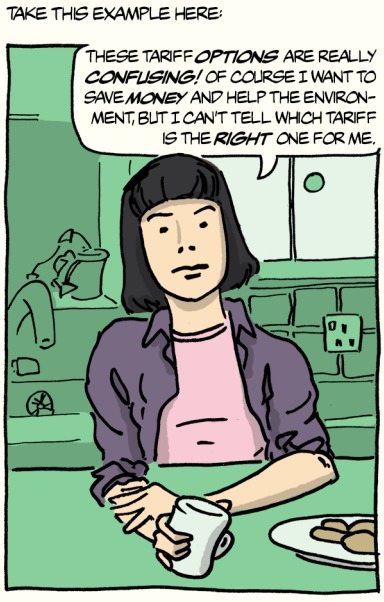

IF YOU CAN'T AFFORD THOSE THINGS, THE ONLY WAY TO BE FLEXIBLE IS TO REINVENT YOUR DAILY ROUTINE. THIS JUST ISN'T POSSIBLE FOR MANY OF US - INCLUDING THE LESS WEALTHY.
SHIFT WORKERS DON'T CONTROL WHEN THEIR SHIFTS ARE. PEOPLE WHO NEED OXYGEN MACHINES CAN'T SUSPEND THEIR ILLNESS. AND OTHER CULTURAL, ECONOMIC AND SOCIAL FACTORS INFLUENCE WHEN WE NEED ENERGY.
SO MARKET-BASED INCENTIVES ALONE DON'T GENERATE THE FLEXIBILITY WE NEED. THEY MOSTLY RESULT IN THE POOR PAYING HIGHER ENERGY RATES.


AN ALTERNATIVE IS TO SHARE THE BURDEN OF FLEXIBILITY THROUGH LOCAL, DE-CENTRALISED ORGANISATION THAT BRINGS IN PEOPLE'S NEEDS.


MORE PARTICIPATORY APPROACHES IN SLES ARE NEEDED THAT CAN, CONSIDER A WIDER RANGE OF HOUSEHOLDS ENERGY CIRCUMSTANCES AND PRIORITIES.
BUT TO GET THERE, WE ALSO NEED REGULATORY REFORMS, AND CHANGES IN THE RELATIONSHIP BETWEEN ENERGY SUPPLIERS AND CUSTOMERS. ENERGY SYSTEMS NEED TO BE REWIRED SOCIALLY AS WELL AS TECHNOLOGICALLY.


THERE IS ANOTHER PROBLEM WITH SLES PILOTS THAT ONLY RELY ON MARKET-BASED INCENTIVES: TRUST.
RESPONDENTS TO PUBLIC SURVEYS SAY CONSISTENTLY THAT PEOPLE HAVE LITTLE TRUST IN THEIR ENERGY PROVIDERS. MANY PEOPLE FEAR THAT THE SMART DEVICES THAT SLES RELY ON - LIKE SMART METERS - WILL END UP BEING USED TO MOVE THEM TO A WORSE TARIFF OR SWITCH THEM OFF ENTIRELY.


LARGE ENERGY PROVIDERS OFTEN HAVE COMPLICATED DATA PROTECTION PROTOCOLS AND TARIFF SYSTEMS. AND THEY SEEM UNAWARE OF HOW THIS UNDERMINES TRUST. THEY ARE TOO BIG TO SEE HOW THEIR CUSTOMERS PERCEIVE THEM.
WHAT A LOVELY DAY!


TAKE THIS EXAMPLE HERE:
THESE TARIFF OPTIONS ARE REALLY CONFUSING! OF COURSE I WANT TO SAVE MONEY AND HELP THE ENVIRONMENT, BUT I CAN'T TELL WHICH TARIFF IS THE RIGHT ONE FOR ME.

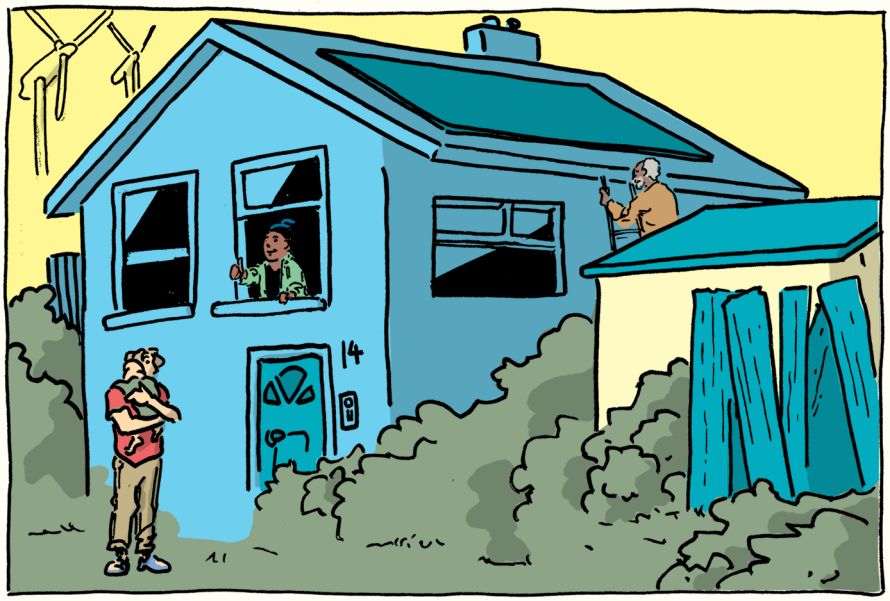

"IT TURNS OUT THAT I'D HAVE ACTUALLY SAVED MONEY ON THIS TARIFF IF I WAS TO DO MY WASHING BETWEEN 9 TO 5. WHY DIDN'T THEY JUST SAY THAT!"


MY WORRY IS, THAT IF I FALL BEHIND ON ONE OF MY PAYMENTS, THEY CAN USE MY SMART METER TO SWITCH ME OVER TO A PRE-PAID PLAN.
THEN WHERE WILL I BE?
I JUST DON'T TRUST THEM.

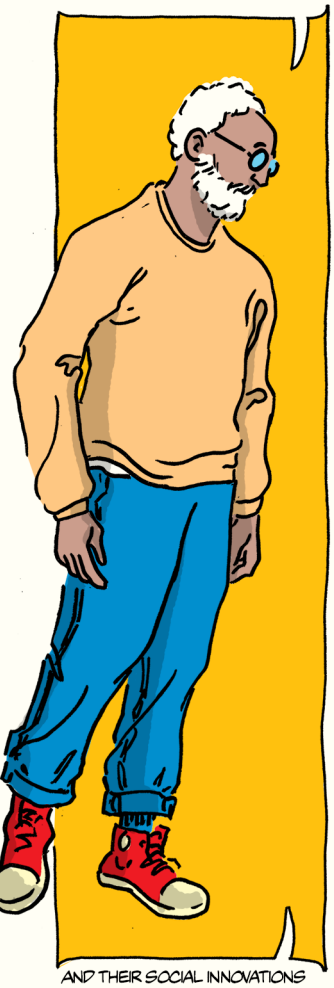

SO IF WE WANT SLES TO WORK, WE NOT ONLY NEED TO REDESIGN MARKET-BASED INCENTIVES, WE ALSO NEED TO REPAIR THE BREAKDOWN OF TRUST BETWEEN ENERGY SUPPLIERS AND CUSTOMERS.

A FEW **SLES** SCHEMES SUGGEST THAT A MORE EFFECTIVE APPROACH MIGHT BE TO MAKE ENERGY SYSTEMS MORE **INCLUSIVE**.

INCLUSIVITY IS ABOUT **MEANINGFUL** PARTICIPATION. AS PART OF A SLES, PEOPLE AREN'T **JUST** ENERGY CUSTOMERS; THEY CAN BE **ENERGY** AND **FLEXIBILITY PRODUCERS** IN THEIR OWN RIGHT. THIS MEANS HOUSEHOLDS PROVIDE **LABOUR** AND BRING **VALUE** TO THE **SYSTEM**.



THERE ARE **ALREADY** CO-OPERATIVE PROJECTS AND ORGANISATIONS WORKING TOWARDS **NEW** KINDS OF ENERGY **MARKETS** IN THE UK.



AND THEIR SOCIAL INNOVATIONS **PROVIDE** SOME OF THE BEST EVIDENCE FOR **HOW** WE CAN MAKE SLES TECHNOLOGIES WORK IN A WAY THAT'S GOOD FOR **BOTH** THE UK'S NET ZERO AMBITIONS, **AND** ITS PEOPLE.

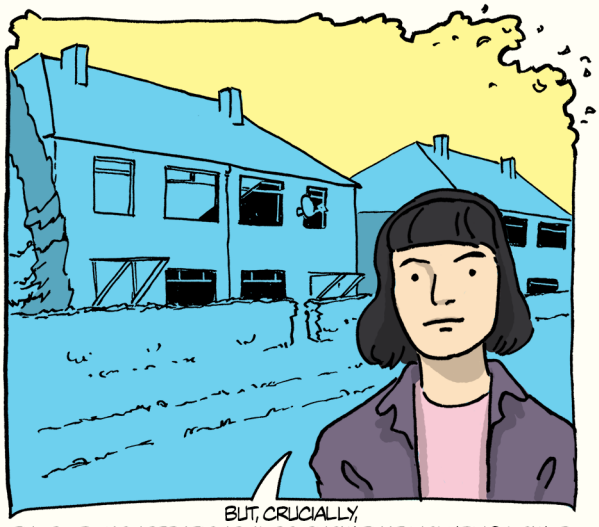
CO-OPERATIVES ARE USING **COMMUNITY** GENERATED RENEWABLE ENERGY TO SET UP **VIRTUAL** POWER PLANTS. THESE VIRTUAL PLANTS USE **SMART** TECHNOLOGY THAT ALLOWS THEM TO FEED ENERGY BACK INTO THE **LOCAL** ENERGY **NETWORK**. THERE ARE ALSO EXPERIMENTS TO DEVELOP COMMUNITY BATTERIES THAT CAN STORE THE RENEWABLE ENERGY AND **SHARE** IT WHEN DEMAND EXCEEDS SUPPLY.



CREATING DATA **CO-OPS**, USING **OPEN** SOFTWARE, AND POOLING RESOURCES IN COMMUNITY ORGANISATIONS MEANS **EVERYONE** CAN SEE HOW DECISIONS ARE BEING MADE.

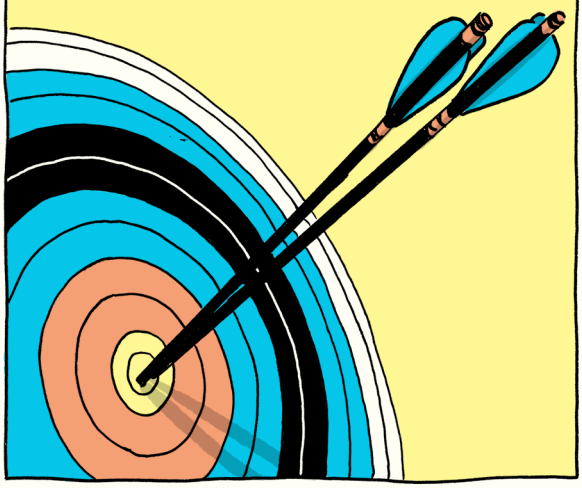
LOCAL ENERGY **CLUBS** ALREADY COORDINATE HOUSEHOLD DEMAND TO **OPTIMISE** THE USE OF LOCAL RENEWABLES. INITIATIVES LIKE THIS **GENERATE** INNOVATIVE IDEAS THAT CAN BOOST **PARTICIPATION** FURTHER.



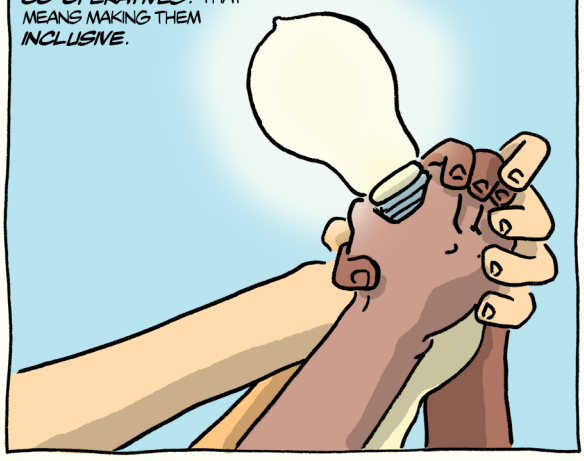


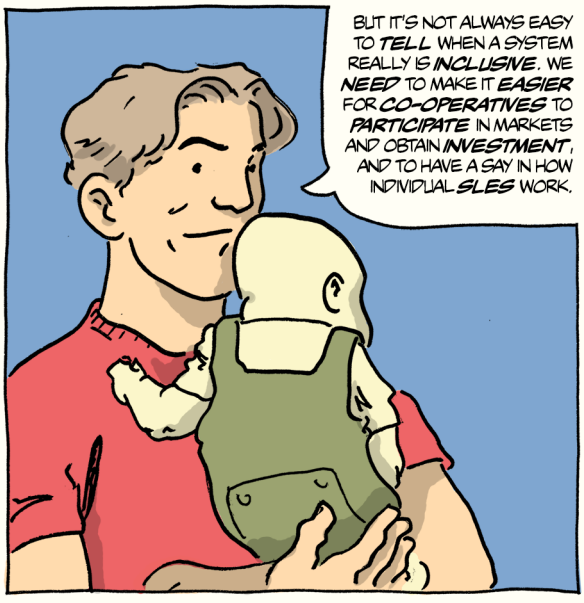
BUT, CRUCIALLY, THESE DEMONSTRATIONS ALSO SHOW THAT INCLUDING LOWER INCOME HOUSEHOLDS **ISN'T** EASY. THIS MEANS WE NEED TO ORGANISE SLES IN MORE **EFFECTIVE** WAYS, SO THAT THEY WORK FOR **ALL** KINDS OF HOUSEHOLDS, WHEREVER THEY HAPPEN TO BE.

IF WE WANT SLES TO **CREATE** THE **FLEXIBILITY** THAT WE NEED FOR OUR **NET ZERO** AMBITIONS...



...THEN WE **NEED** TO MAKE IT AS EASY AS POSSIBLE FOR **LOTS** OF PEOPLE TO ACTIVELY **PARTICIPATE** IN THESE KINDS OF ENERGY **CO-OPERATIVES**. THAT MEANS MAKING THEM **INCLUSIVE**.





BUT IT'S NOT ALWAYS EASY TO **TELL** WHEN A SYSTEM REALLY IS **INCLUSIVE**. WE **NEED** TO MAKE IT **EASIER** FOR **CO-OPERATIVES** TO **PARTICIPATE** IN MARKETS AND OBTAIN **INVESTMENT**, AND TO HAVE A SAY IN HOW INDIVIDUAL **SLES** WORK.

ARNSTEIN'S LADDER

- CITIZEN CONTROL
- DELEGATION
- PARTNERSHIP

} CITIZEN POWER

- PLACATION
- CONSULTATION
- INFORMING

} TOKENISM

- THERAPY
- MANIPULATION

} NON-PARTICIPATION

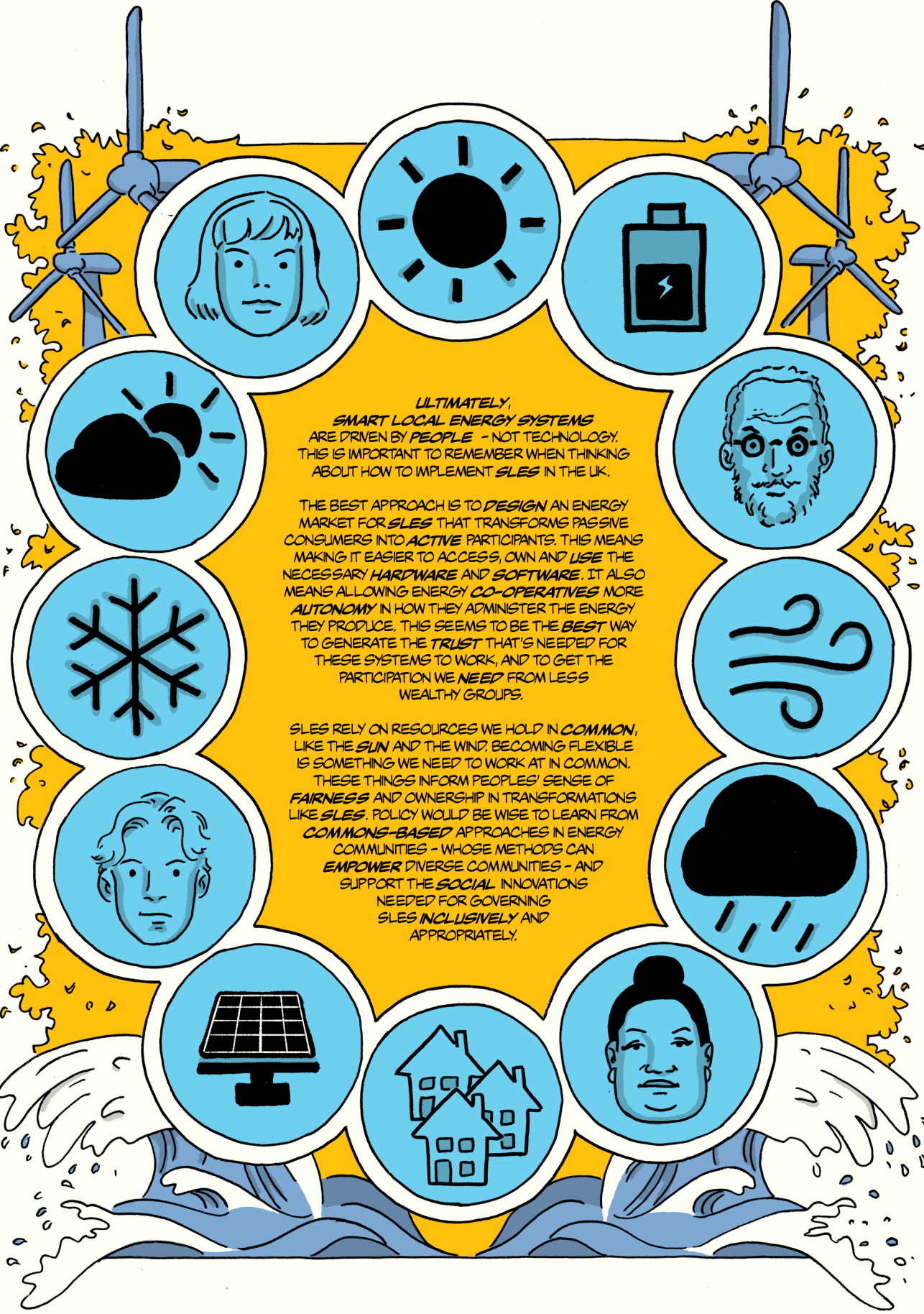
BUILDING SYSTEMS **AROUND** CITIZEN NEEDS, INCLUDING POOR HOUSEHOLDS, COULD **OVERCOME** THE RISK OF HOUSEHOLDS DISCONNECTING FROM **SLES** BECAUSE THEY SEE MORE POWERFUL ACTORS CAPTURING ALL THE **BENEFITS**.

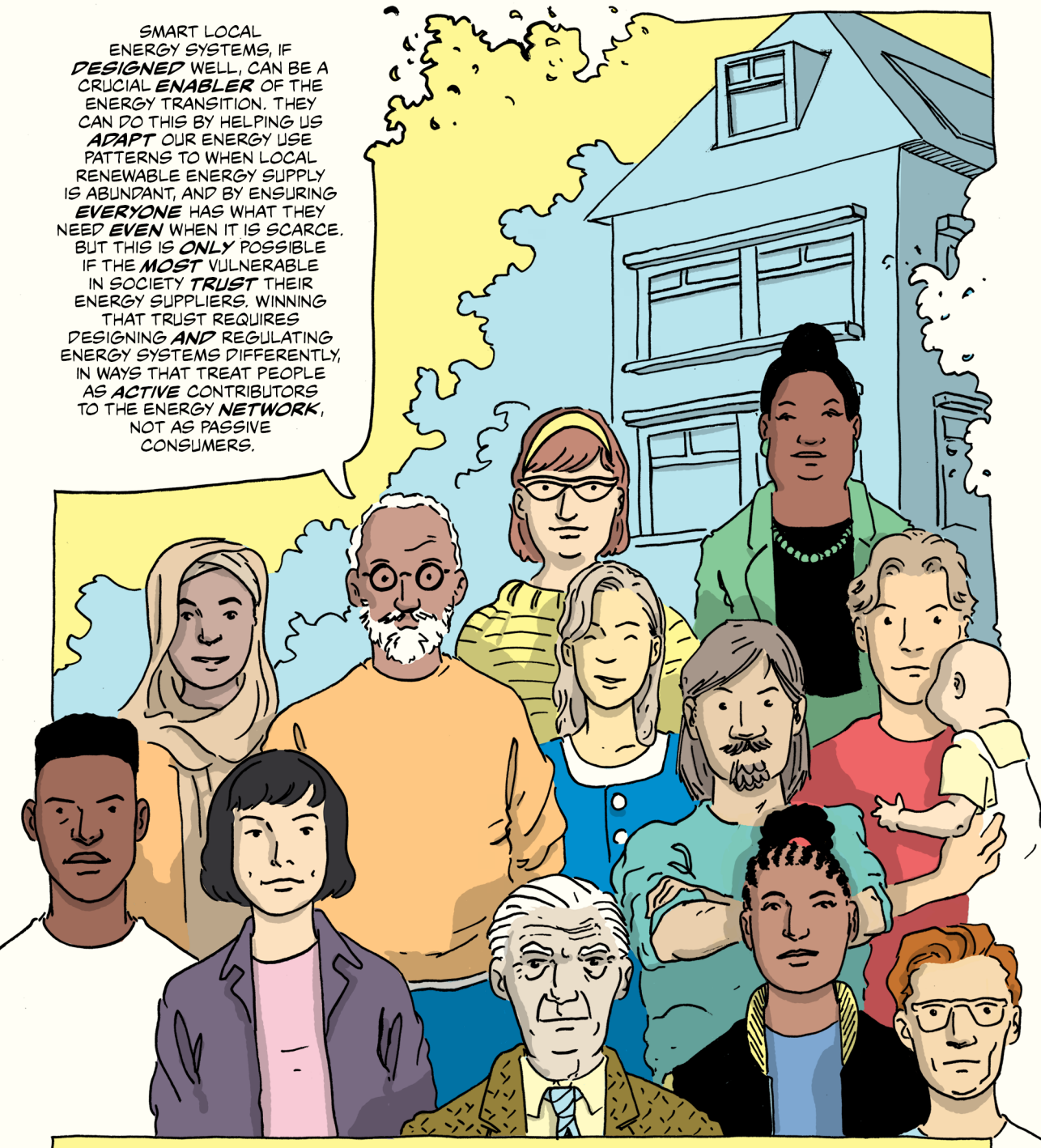
BUILDING TRULY **INCLUSIVE** SYSTEMS IS ALWAYS DIFFICULT. BUT A **GOOD** PLACE TO **START** IS RECOGNISING THAT...



...**SLES** ARE ABOUT **PEOPLE** AS MUCH, IF NOT **MORE**, THAN TECHNOLOGY.

COMMUNITY AND COMMONS BASED INITIATIVES THAT **DEVELOP** NEW SOCIAL **ORGANISATIONS** IN PARTICIPATORY WAYS - INCLUDING ENERGY SYSTEMS - SHOULD BE **INSPIRING** AND **INFORMING** THE MISSING SOCIAL INNOVATIONS FOR **INCLUSIVE** SLES.


ULTIMATELY, SMART LOCAL ENERGY SYSTEMS ARE DRIVEN BY PEOPLE - NOT TECHNOLOGY. THIS IS IMPORTANT TO REMEMBER WHEN THINKING ABOUT HOW TO IMPLEMENT SLES IN THE UK.
THE BEST APPROACH IS TO DESIGN AN ENERGY MARKET FOR SLES THAT TRANSFORMS PASSIVE CONSUMERS INTO ACTIVE PARTICIPANTS. THIS MEANS MAKING IT EASIER TO ACCESS, OWN AND USE THE NECESSARY HARDWARE AND SOFTWARE. IT ALSO MEANS ALLOWING ENERGY CO-OPERATIVES MORE AUTONOMY IN HOW THEY ADMINISTER THE ENERGY THEY PRODUCE. THIS SEEMS TO BE THE BEST WAY TO GENERATE THE TRUST THAT'S NEEDED FOR THESE SYSTEMS TO WORK, AND TO GET THE PARTICIPATION WE NEED FROM LESS WEALTHY GROUPS.
SLES RELY ON RESOURCES WE HOLD IN COMMON, LIKE THE SUN AND THE WIND. BECOMING FLEXIBLE IS SOMETHING WE NEED TO WORK AT IN COMMON. THESE THINGS INFORM PEOPLES' SENSE OF FAIRNESS AND OWNERSHIP IN TRANSFORMATIONS LIKE SLES. POLICY WOULD BE WISE TO LEARN FROM COMMONS-BASED APPROACHES IN ENERGY COMMUNITIES - WHOSE METHODS CAN EMPOWER DIVERSE COMMUNITIES - AND SUPPORT THE SOCIAL INNOVATIONS NEEDED FOR GOVERNING SLES INCLUSIVELY AND APPROPRIATELY.



THIS COMIC WAS DEVELOPED WITH

ADRIAN SMITH, GERARDO A. TORRES CONTRERAS, MARIE CLAIRE BRISBOIS, AND RICHARD FLOCKEMANN

AT THE SCIENCE POLICY RESEARCH UNIT. IT USES THEIR RESEARCH FOR THE RESPONSIVE ORGANISING FOR LOW EMISSION SOCIETIES (ROLES) PROJECT, FUNDED BY THE ECONOMIC AND SOCIAL RESEARCH COUNCIL UNDER THE JPI SOLSTICE 2020 PROGRAMME (GRANT AGREEMENT NO. ES/V01403X/1), AND WITH CONTRIBUTIONS FROM MAX LACEY-BARNACLE AND BENJAMIN SOVACOOL. THE COMIC WAS FUNDED BY THE UNIVERSITY OF SUSSEX'S KNOWLEDGE EXCHANGE POLICY FELLOWSHIP SCHEME.

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BY TIM ZOCCO