Historical Public Ownership

Central Electricity Generating Board

CENTRAL ELECTRICITY GENERATING BOARD

Power Plants

Transmission Grid

sells to

Area Electricity Boards

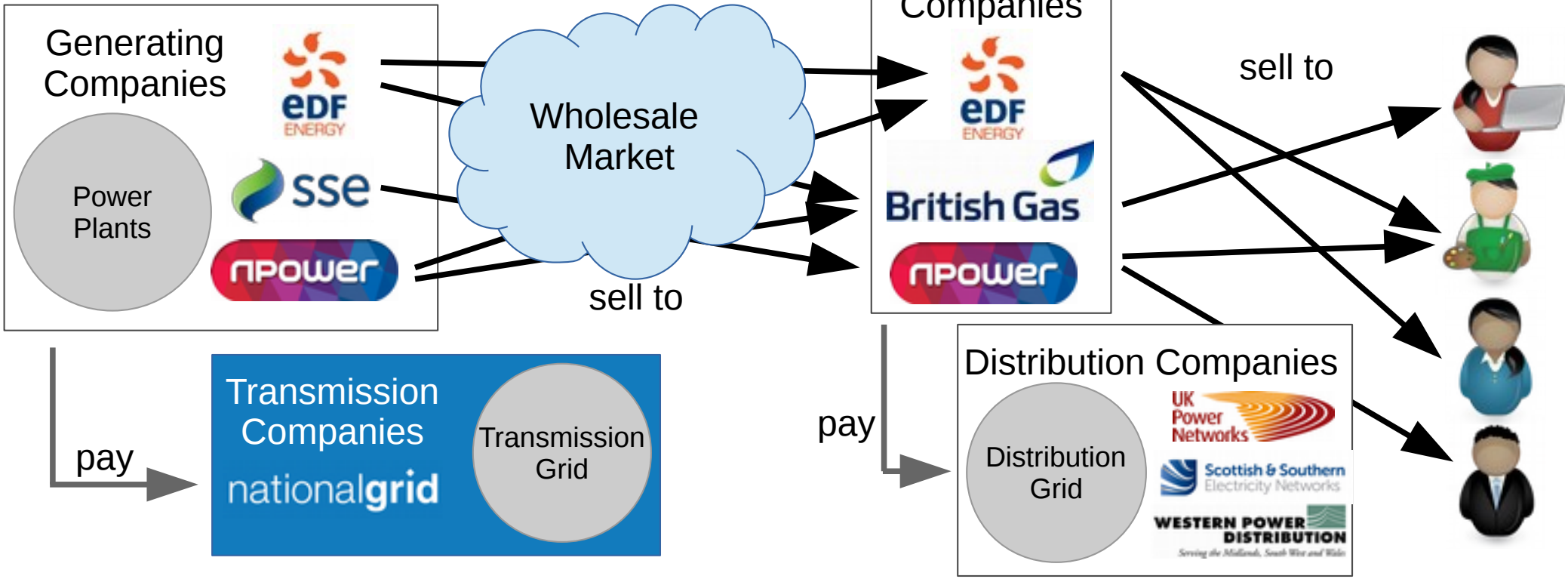
Yorkshire Electricity

LONDON ELECTRICITY

Distribution Grid

sell to

The Current System



An Artificial Market

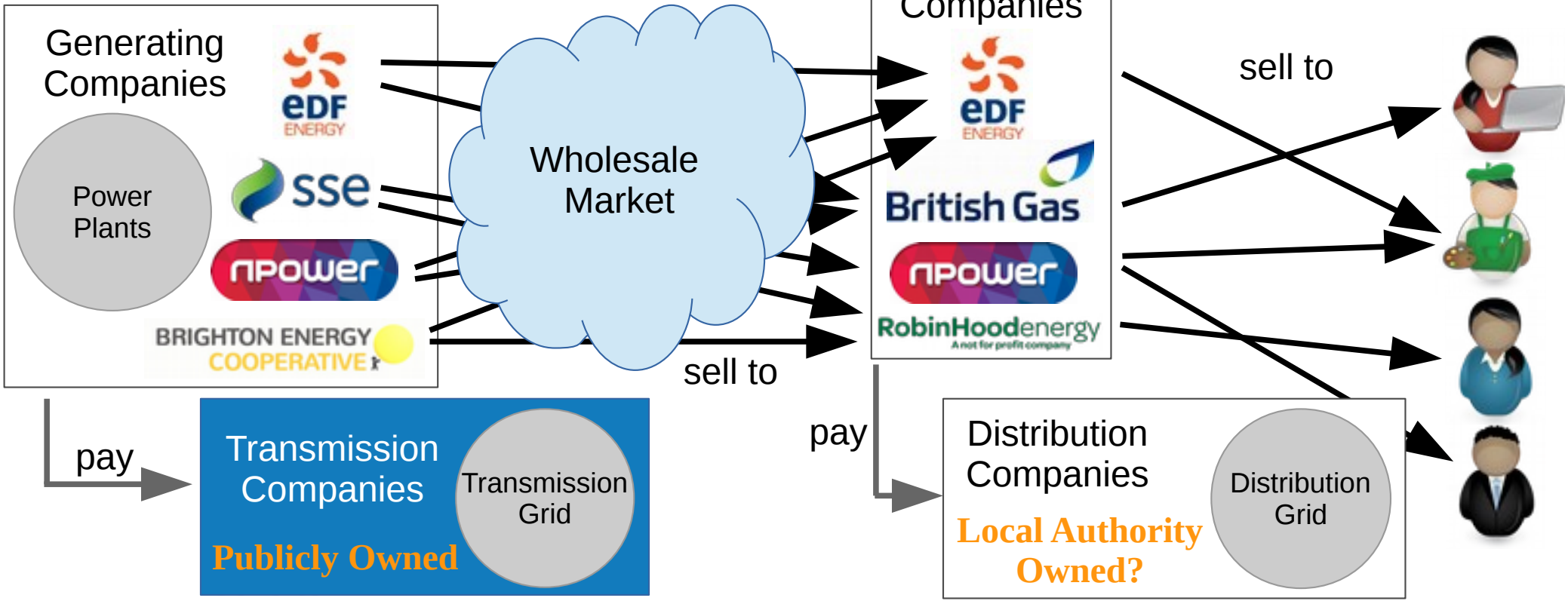
- Market is constructed by state, outcomes entirely dependent on design
- Complex, unaccountable, difficult to understand
- Not amenable to public planning
- Difficult to get new capacity built without subsidies
- Particularly difficult to balance intermittent renewables

Currently we're trying to plan the market

"A range of market and regulatory mechanisms and commercial arrangements exist to allocate and recover system integration costs. Ideally, such arrangements should ensure that the operational and investment decisions made by private entities achieve outcomes as close as possible to the theoretical ideal prescribed by Imperial's modelling."

— System Integration Costs for Alternative Low Carbon Generation Technologies: Policy Implications

Labour's Proposals



And as for co-ops...

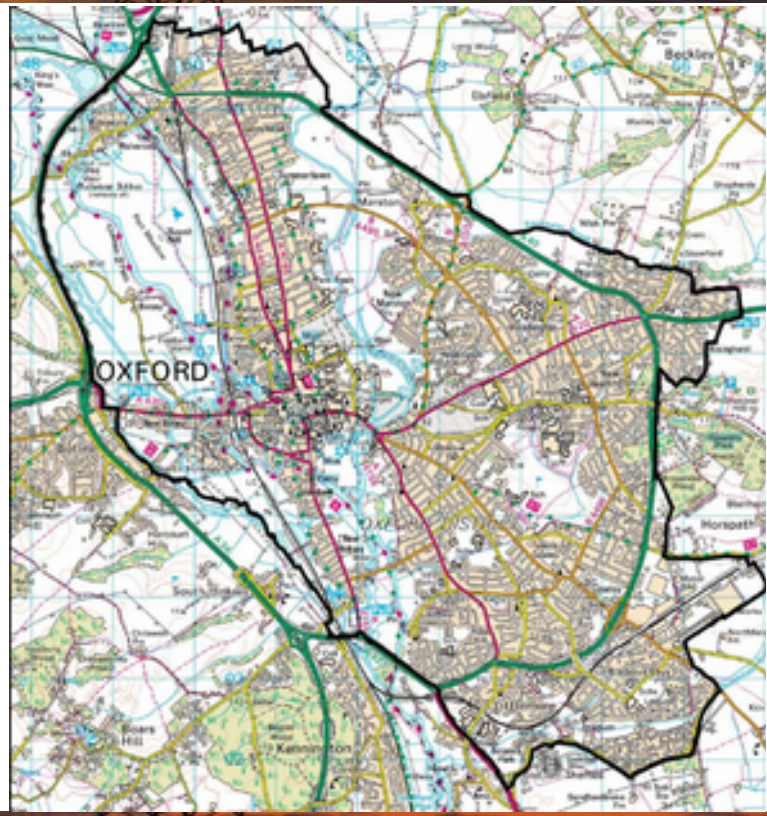
- Locals finance new projects
- Power sold to grid (*not members*)
- Members vote on decisions, receive dividends
- *This is Thatcher's share-owning democracy!*

"We aim to provide new members a return on investment of 5% a year. . . . The minimum shareholding is £300 and the maximum is £100,000."

—Brighton Energy Cooperative

“Local” energy

- 170 000 people, 46 km^2
- From national data, would currently use 100MW electricity
- Corresponds to 40 km^2 wind farm
- Not enough free space in city limits
- Would need to import



Power Consumption

"Energy consumption in the UK", Department for Business, Energy & Industrial Strategy, <https://www.gov.uk/government/statistics/energy-consumption-in-the-uk>, accessed 8 February 2018.

Electricity

- Average: 35GW
- *Peak: 50GW*

Other Sources

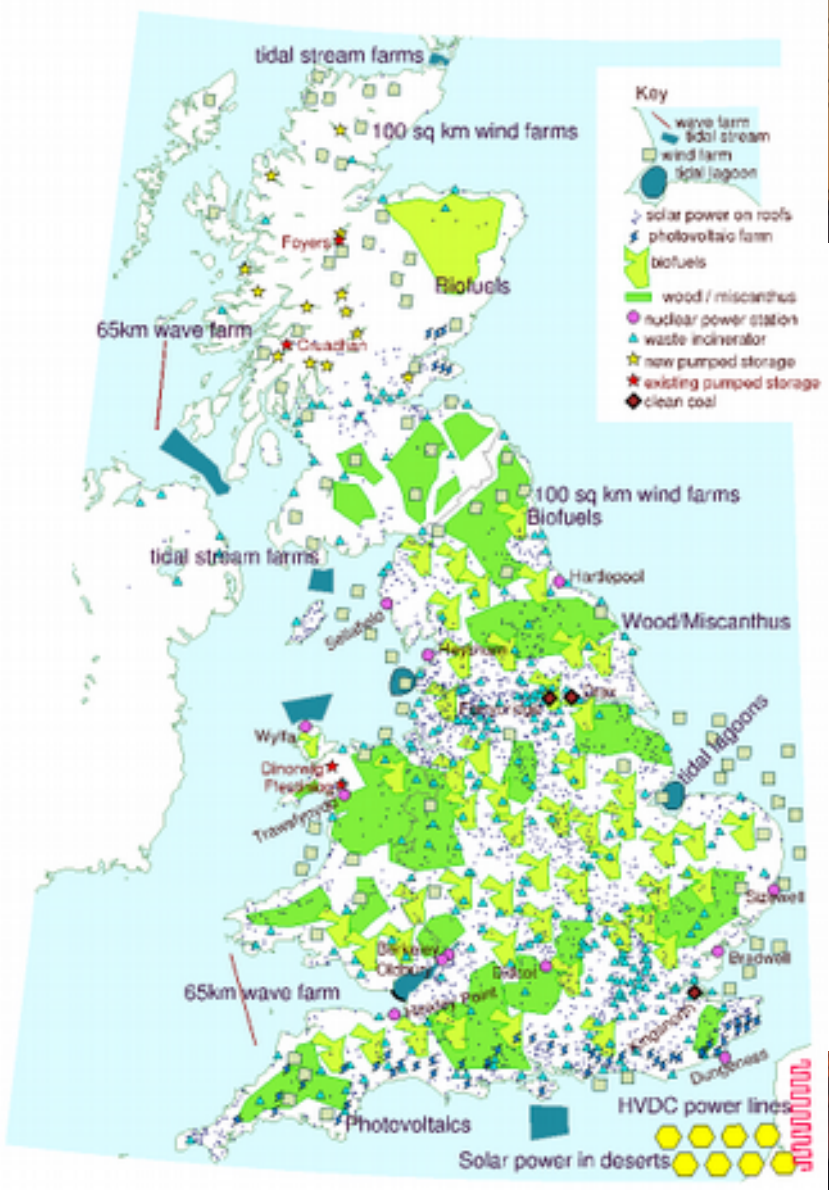
- Gas: 55GW
- Petroleum: 85GW

- Lots of room for efficiency, but also for growth
- Electric engines/heating more efficient
- Say we'll need *100GW clean power* on average

Renewables in Britain

- To get enough electricity, need country-sized amounts of land
- 50GW wind needs 10% of all land (~1.2 × Wales)
- Compare: 6% of land currently built on

Sustainable Energy – without the hot air, David MacKay, 2009, p. 214-215.



Intermittency

- Balancing electricity supply/demand always challenging
- Must be able to cope with long lulls
- Means total cost much more than what producers bid
- Renewables need some combination of storage, “super-grid”, demand management, complementary sources
- *Not amenable to localisation*

What do we Need?

Range of options, but ideally:

- Abolition of wholesale market
- National ownership of transmission and (new) generation
- Use cheap public loans to build new infrastructure
- Public monopoly in distribution and supply (could be local)
- This violates EU energy directives

Further Reading

- Electricity Markets: *https://newsocialist.org.uk/ownership-and-markets-energy/*
- **Renewable Capacity/Energy Demand: *https://www.withouthotair.com/***
- Intermittency: *https://bravenewclimate.com/2011/10/29/gws-sg-es/*
- Energy Sources: *http://www.leftfutures.org/2017/02/energy-for-the-21st-century-part-i-fossil-fuels-renewables-and-nuclear/*
- EU Energy Directives: *https://ec.europa.eu/energy/node/50*