Twitter Thread by Pete Johnson ■ ■



Pete Johnson ■ ■
@pedrojuk

@AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd I'll bite. Let's try to keep it factual. There's a reasonable basis to some aspects of this question, that it might be possible to agree on. Then there are other, more variable, elements which depend on external factors such as transport and energy policy. /1

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd First up, we know reasonably well how much energy it takes to propel a high-speed train along the HS2 route. We can translate that into effective CO2 generated by making some assumptions about how green the electricity grid is. /2

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd Secondly, we have a reasonable grasp of how much CO2 is going to be generated by building HS2 - there are standard methods of working this out, based on the amount of steel, concrete, earthmoving, machine-fuelling etc required. /3

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd Thirdly, we can estimate how much CO2 is generated by cutting down trees, and how much is captured by planting new trees. We can also estimate how much CO2 is needed to keep the railway running and generated by maintaining the track /4

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd We know how much CO2 is saved by moving goods by freight train on the lines freed up by moving the express trains on to HS2, rather than by truck. /5

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd And we also know how much CO2 is generated by each car, train and plane trip that HS2 could replace. (A flavour of it is shown in the BEIS numbers here) /6

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd Now it starts to get a bit more complicated. The uncertainty comes in how many people are going to be using HS2 rather than those other methods. There are two major competing views - the one modelled by HS2 Ltd using the DfT computer model … /7

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd … and a more pragmatic one based on what we observe from other high speed rail schemes elsewhere. And both those can be further influenced by broader policies on such things as road charging, fuel duty, frequent flyer levies etc. /8

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd First up, the DfT version - which leads to the anti HS2 campaigns' "not neutral for 120 years" claims. It's worth looking into the assumptions behind this - the best analysis was done by David Peilow: https://t.co/rBoht19Xnd. They are very unfavourable to HS2. /9

> HS2 receives wide criticism in the green community, opposing it is even Green Party policy. Why? The crux seems to be claims of carbon neutrality: High-speed rail is seen internationally as a low carbon transport mode, but HS2\u2019s own work undermines this view. What is going on?
>
> — David Peilow (@dpeilow) January 30, 2021

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd They assume that there'll be little growth in rail demand once HS2 is opened, yet road and air demand will grow; that car travel will continue to get cheaper while rail travel gets more expensive, and that many people will get to the station by car not public transport. /10

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd These result in a very small modelled shift from car to HS2 (4% of HS2 trips), and a tiny one from air (1%). Even so, that 1% makes the major contribution to HS2's CO2 savings, as this analysis by @greens4hs2 shows: https://t.co/oHZGtvnbfP. /11

> Let\u2019s have another look at where the CO2 savings come from. The main win comes from trips that would have been done by air shifting to HS2; next is getting lorries off the road through more rail freight on freed-up lines. There are 2 really important things to note about this. /8 pic.twitter.com/F1KCODL6Eh
>
> — Greens for HS2 (@Greens4HS2) September 26, 2020

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd If you look at what actually happens with real high speed rail schemes, you find that they capture much more of the air traffic that they compete with. This is true for London-Paris via Eurostar, for Madrid-Barcelona, for Taipei-Kaohsiung and more. /12

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd Increasing that shift from air makes a huge difference. Plugging in the numbers we expect, as David Peilow does, brings HS2's CO2 payback period down under 30 years by his figures. /13

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd And there's more. We haven't yet factored in any external policies to actually encourage people to use the train rather than drive or fly. That's the biggest area of uncertainty. The modelling expressly excludes that sort of policy intervention. /14

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd If you're of a Green bent or interested in getting to zero CO2, you're going to be in favour of shifting the balance from high-CO2 to low-CO2 modes. So you'll favour rail fare subsidies, air capacity limits, frequent flyer levies. /15

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd Every one of those interventions will move more people to take the train rather than fly or drive. Every one of those shifted journeys makes HS2 more CO2-effective and brings that payback date even closer. /16

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd And there's even more! Even more unknown than the transport policies is what's going to happen to the classic rail network once the fast express trains have been taken off it, replaced by HS2 trains. That frees up a lot of space for new trains. /17

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd Off HS2's radar and not considered in its modelling is what CO2 benefits can be gained by getting people out of cars and on to new train services using that freed-up space. These are substantial - but we don't know how big they'll be. /18

@danielashby @AdamWJT @Greens4HS2 @TheGreenParty @GarethDennis @XRebellionUK @Hs2RebelRebel @HS2ltd So - we know that the "120 years" figure is really very much an unrealistic worst case, the real number is much earlier, and that actively campaigning for sensible CO2-reduction policy can have a massive impact even on that. It doesn't make any sense just to quote a single date.