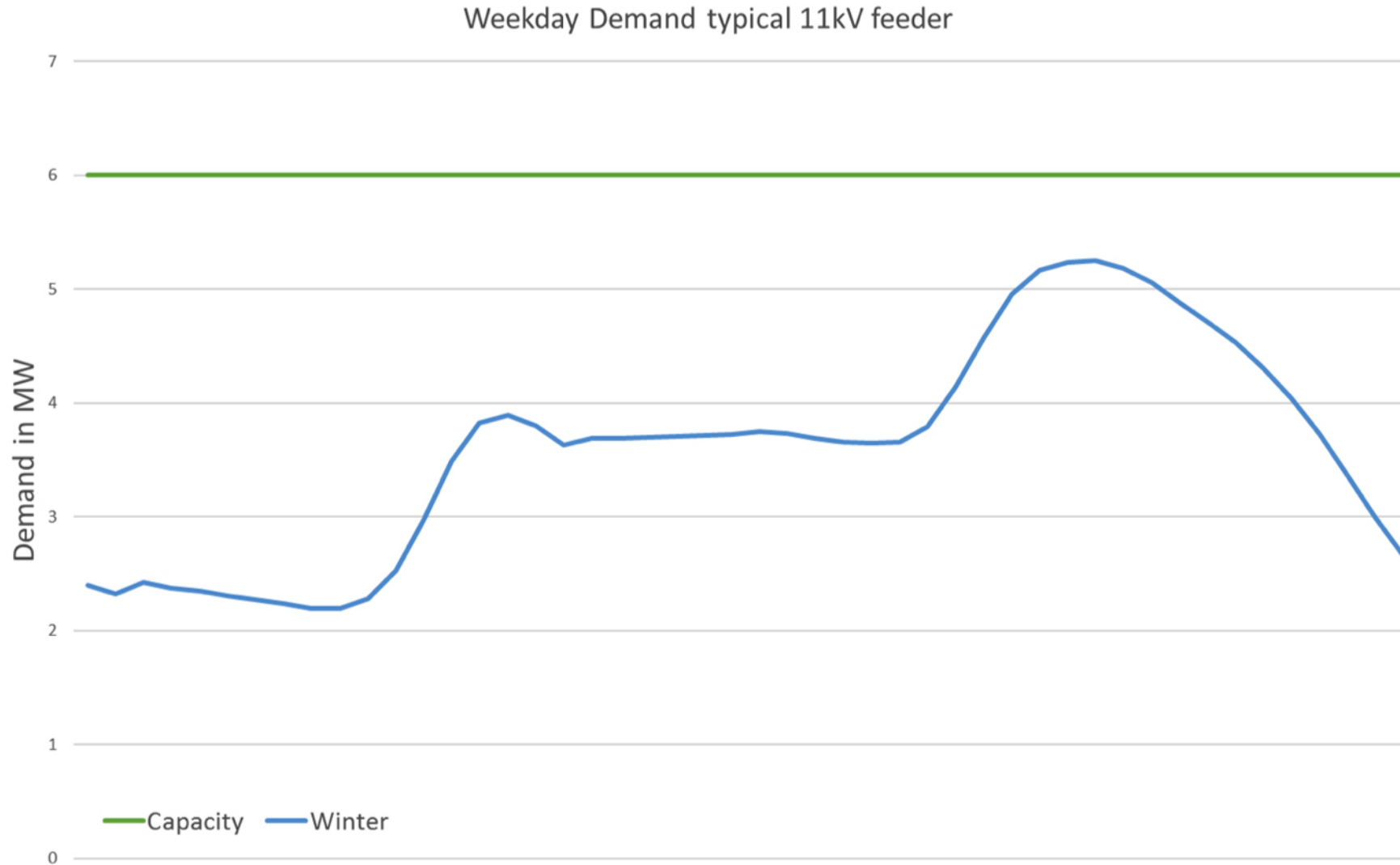


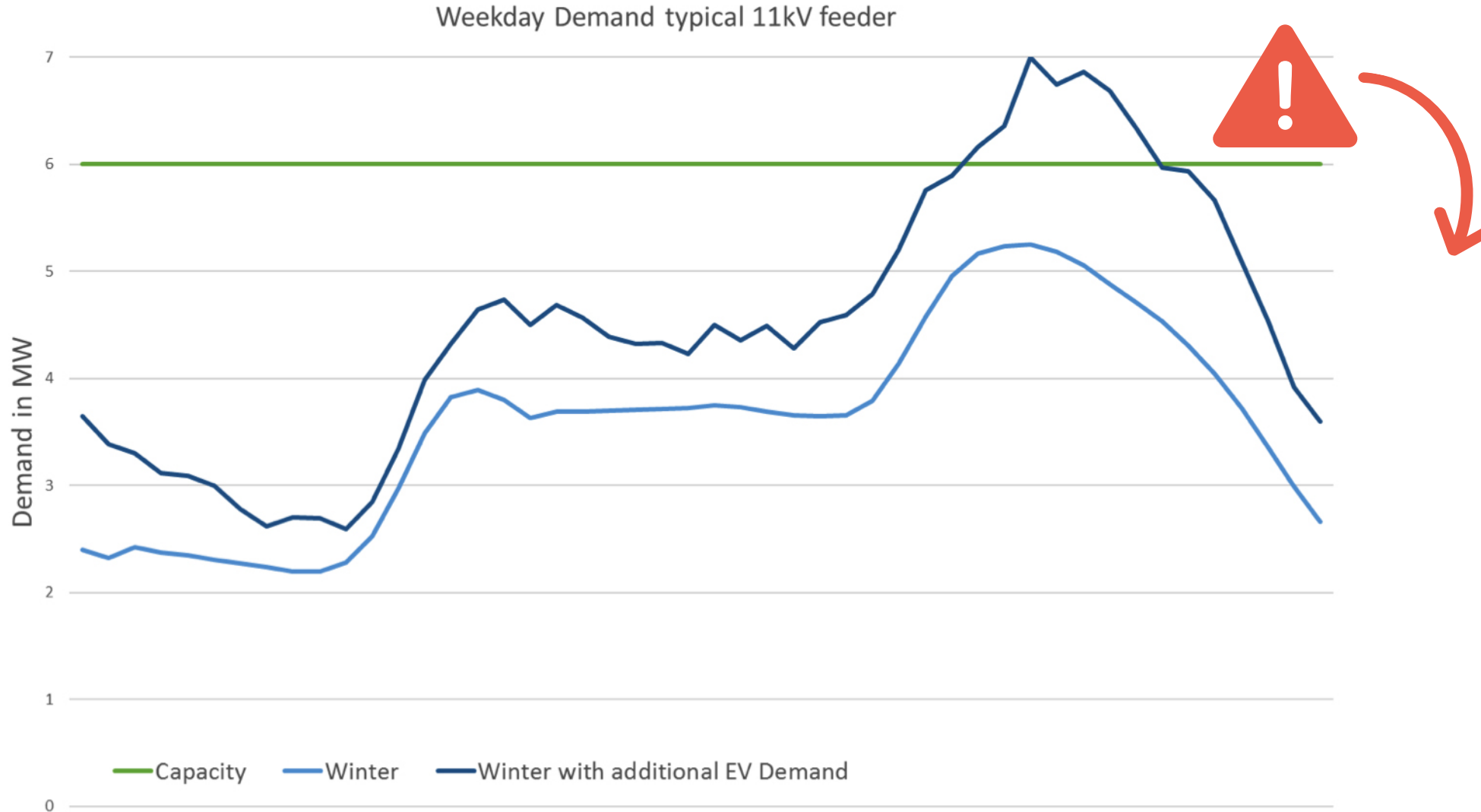
Electric Vehicles: are networks ready?

Presenter: Mark Sprawson
March 2019

This from the UK suggests “no”, right?

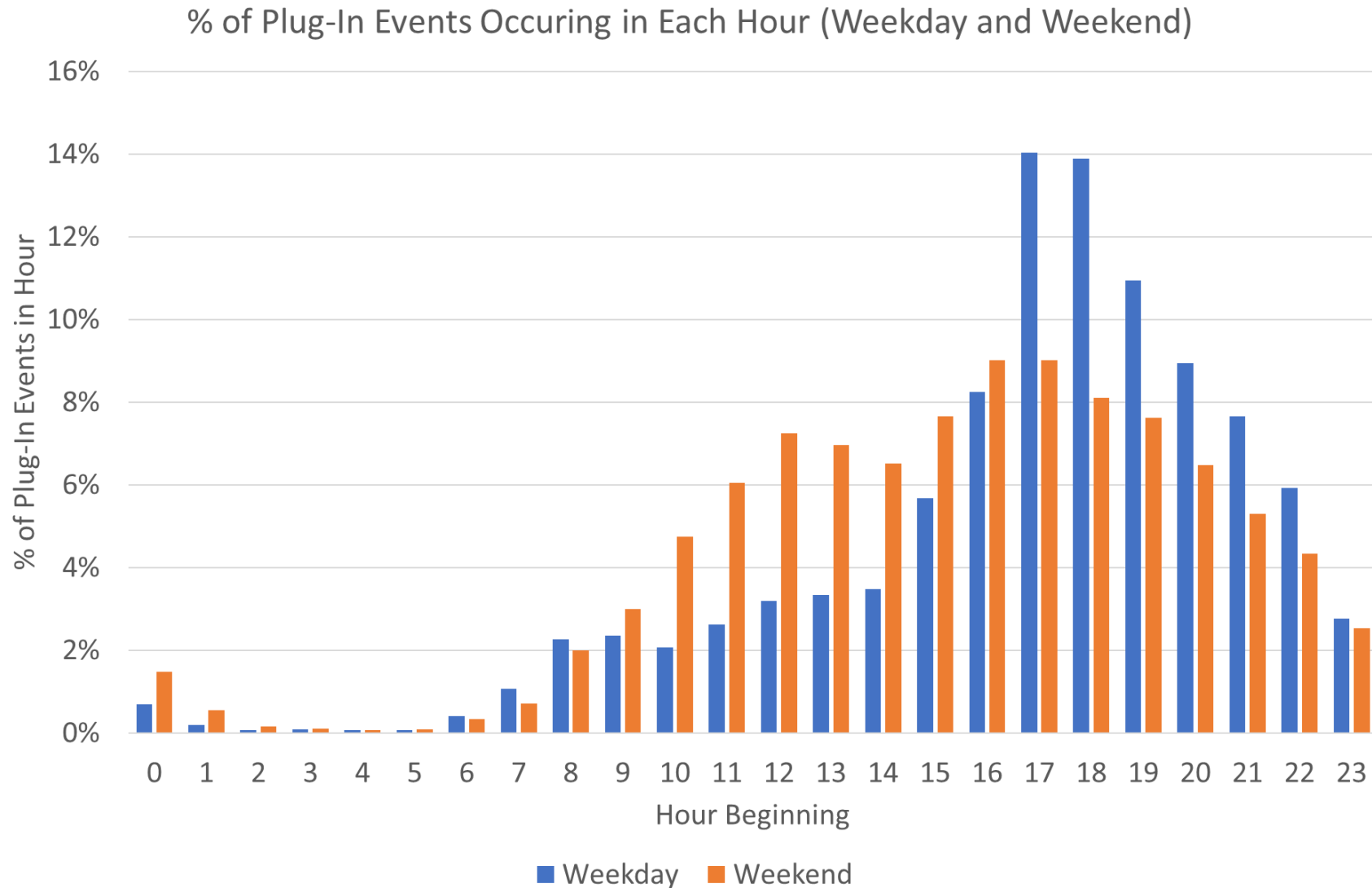


This from the UK suggests “no”, right?



Well, it's not
quite the whole story...

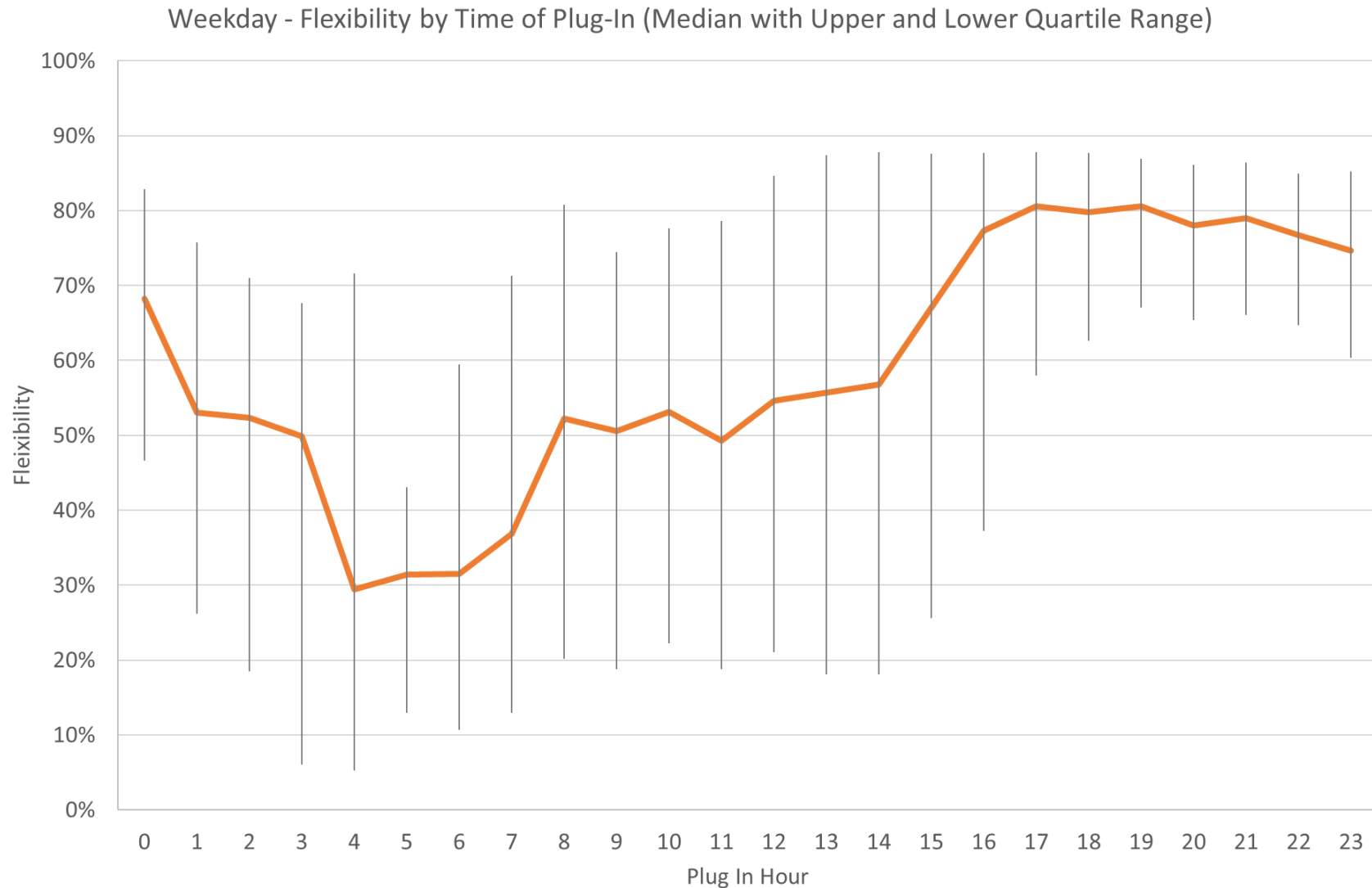
What about smart charging?



Substantial flexibility
in the evening peak

—
75% of charging
events are charging
for less than **40%**
of the time they're
plugged in

What about smart charging?



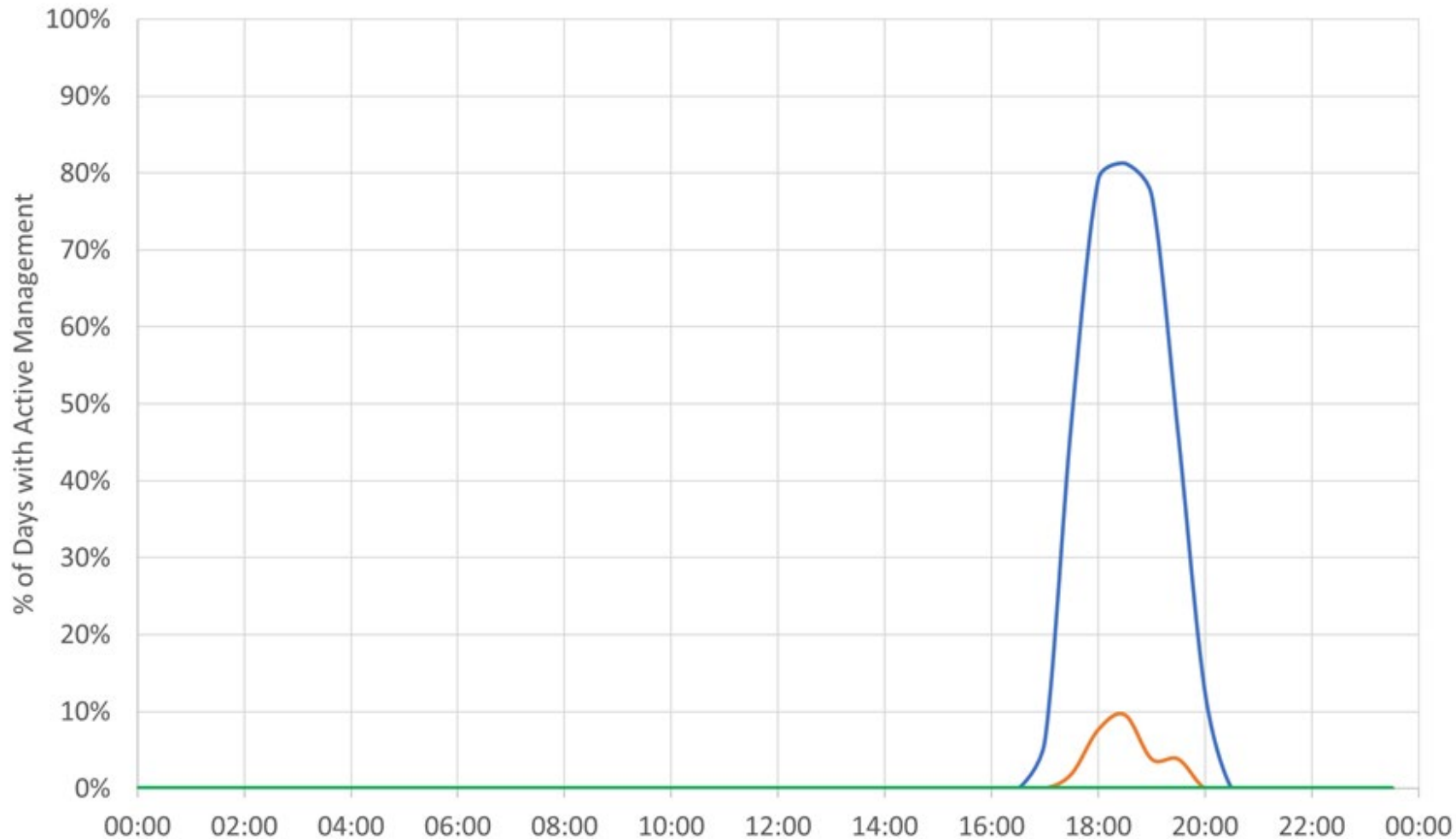
Substantial flexibility
in the evening peak

—
75% of charging
events are charging
for less than **40%**
of the time they're
plugged in

Ah, but will customers accept this?

Ah, but will customers accept this?
Well, yes, actually as long as it is done
right...

How do customers respond?

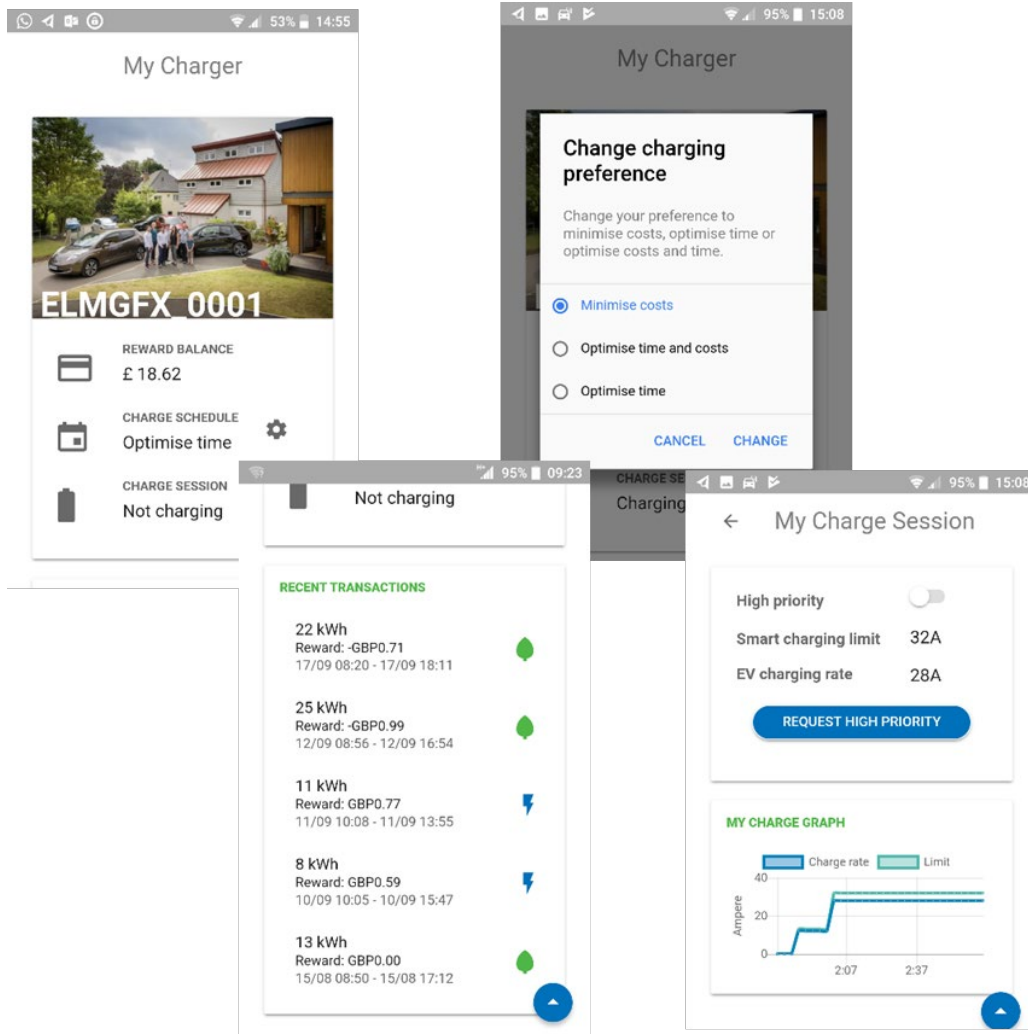


Blue line shows no ToU incentive, while orange and green are with ToU incentive

Number of days when management needed fell from **80% to 0%**

How do customers respond?

Customer satisfaction actually increased!
Critical to make it simple!
Customers interacted via an app to optimise
for cost or charge time.



So if this is all possible with ToU tariff (retailer-led) then the DNSP doesn't need to worry at all?

No, but it is a more manageable problem...

So how does the DNSP know
if ToU incentives will suffice?

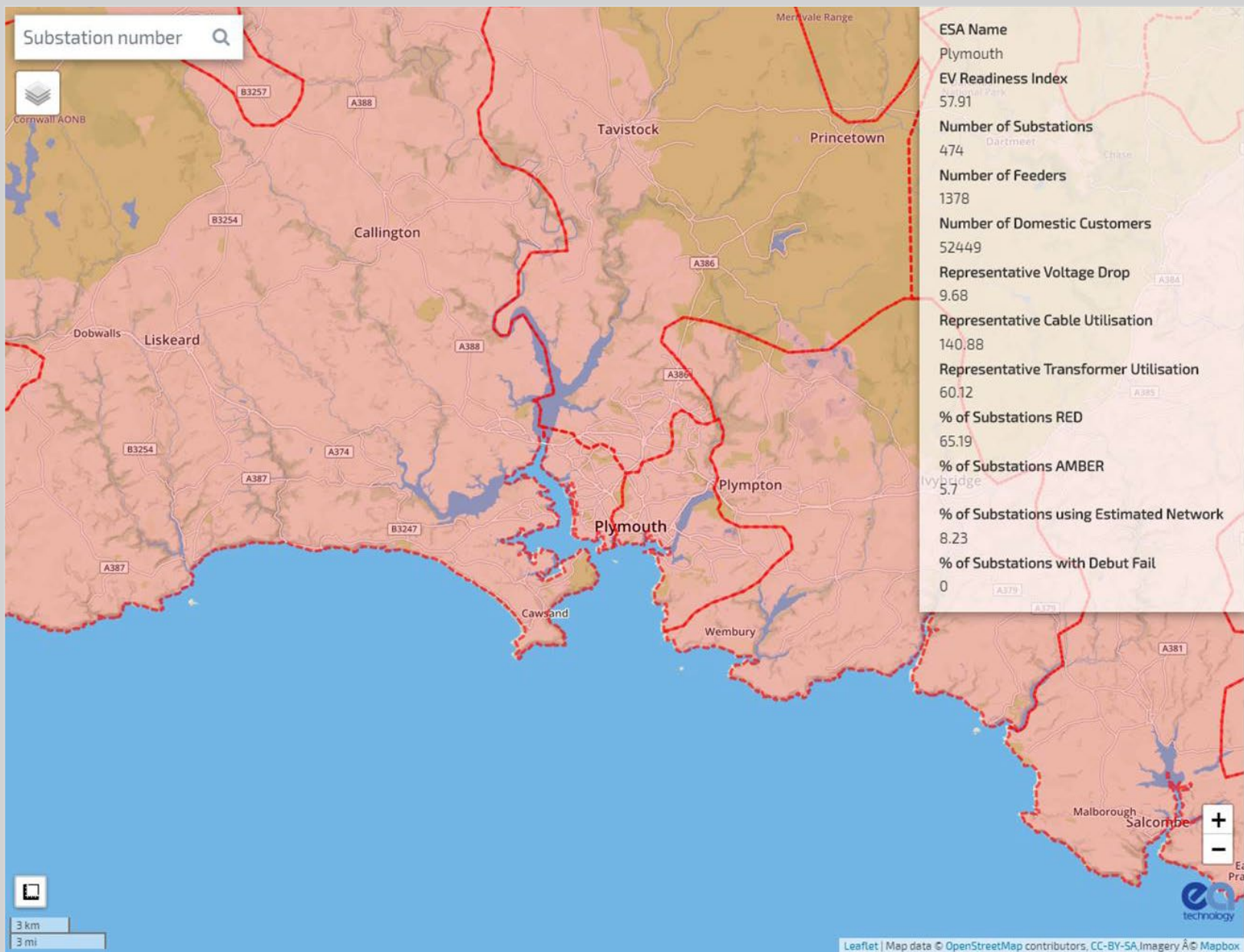
So how does the DNSP know
if ToU incentives will suffice?

When is augmentation or
some other measure needed?

So how does the DNSP know
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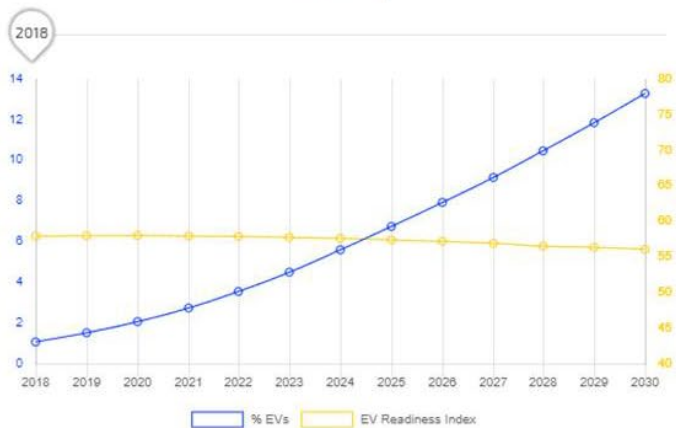
When is augmentation or
some other measure needed?

New tools can help...

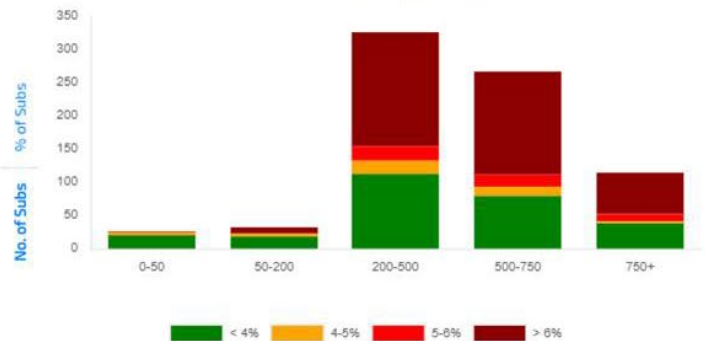


PLYMOUTH (63)

Manual



By Year View Detail View



Voltage Drop (%) Cable Utilisation (%) Tx Utilisation (%)

Tx Rating	Max Distance to Customer	No. of Customers	% of Domestic Customers	Branch Factor	Primary
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BARNE BARTON (333307)

Forecast Manual

Number of EVs

Calculate

Deploy Smart TOU Tariff

	Max Utilisation (%)		Max Volt Drop (%)	
	3 EVs	21 EVs	3 EVs	21 EVs
Substation	70	70	-	-
Feeder 10	75	75	4.60	5.30
Feeder 20	13	13	0.50	0.50
Feeder 30	21	21	0.90	0.90
Feeder 40	22	22	1.60	1.70

So are networks ready?

Not quite yet, but what's needed to make them ready?



Increased network visibility
via monitoring and modelling



Stakeholder engagement



Standardisation of
smart charging

Thank you



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