



# En elektrisk fremtid

## Kan ammoniakk spille en rolle?

Webinar, 4. juni 2020, Norsk Klimastiftelse #klimafrokost

Auke Lont, Commissioner, Energy Transition Commission

[www.energy-transitions.org](http://www.energy-transitions.org)

**Statnett**

# The Energy Transitions Commission

[www.energy-transitions.org](http://www.energy-transitions.org)



Dominic Emery



Will Gardiner



Richard Lancaster



Shu Yinbiao



Nandita Parshad



Zoe Knight



Zhang Lei



Chad Holliday



Auke Lont



Andreas Regnell



Robert Trezona



Mark Laabs



Mahendra Singhi



Cathy Zoi



Adair Turner

Ajay Mathur



Philip New



Zhao Changwen



Laurence Tubiana



Alex Laskey



Simon Thompson



PA de Chalendar



Nicholas Stern



Jules Kortenhorst



Rachel Kyte



Jean-Pascal Tricoire



S Padmanabhan



Laurent Auguste



Timothy Wirth



Andrew Steer



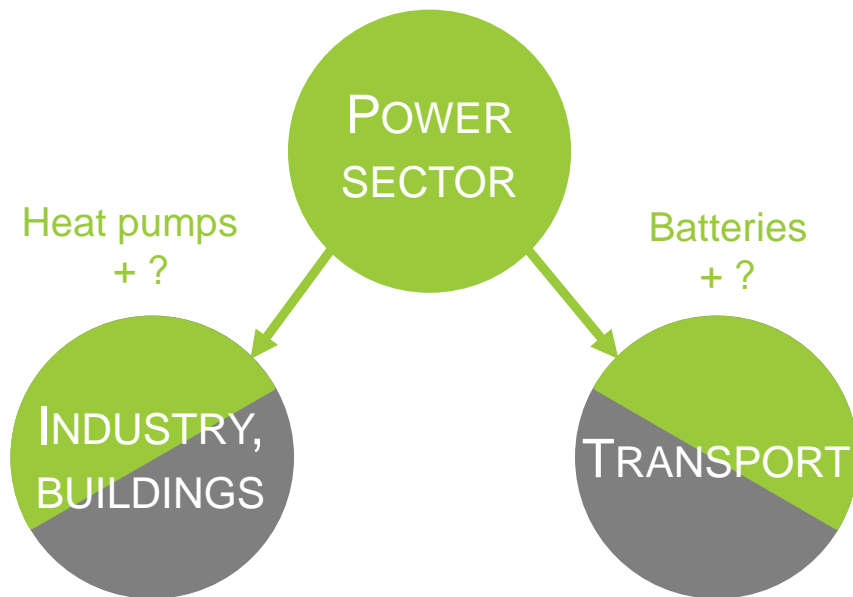
Nigel Topping



*"What does it take to **reach** the 1.5 degree climate goal by 2050? "*

- Energy Transitions Commission (ETC)

# A decarbonized power sector will drive the energy transition

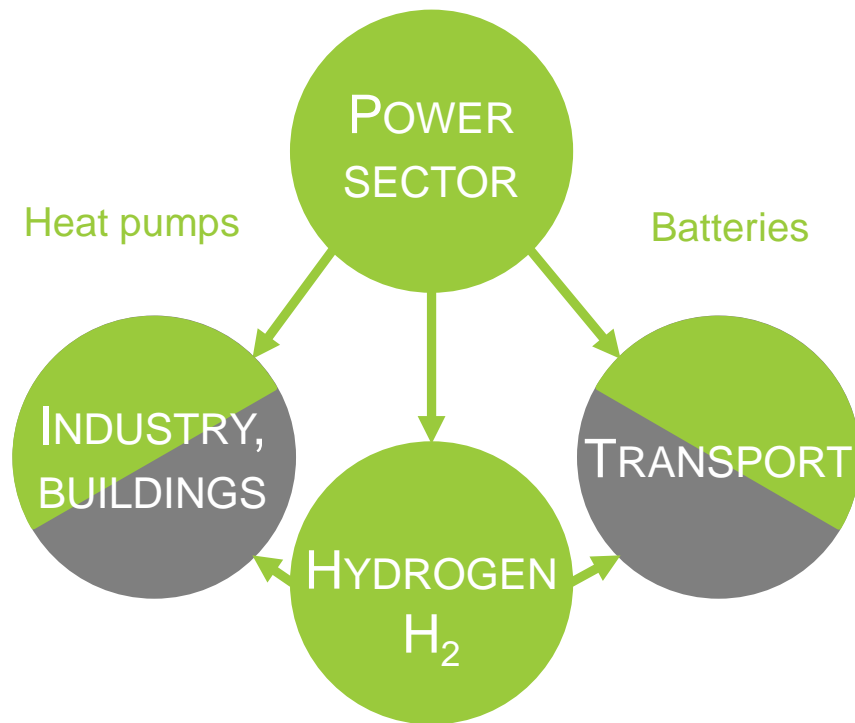


## DRIVERS:

- 1 Cheap renewables
- 2 Strong carbon price
- 3 Consumer power

*The energy sector is responsible for ~75% of GHG emissions globally (IPCC)*

# Cheap power can supply cost efficient hydrogen



DRIVERS:

- 1 Cheap renewables
- 2 Strong carbon price
- 3 Consumer power

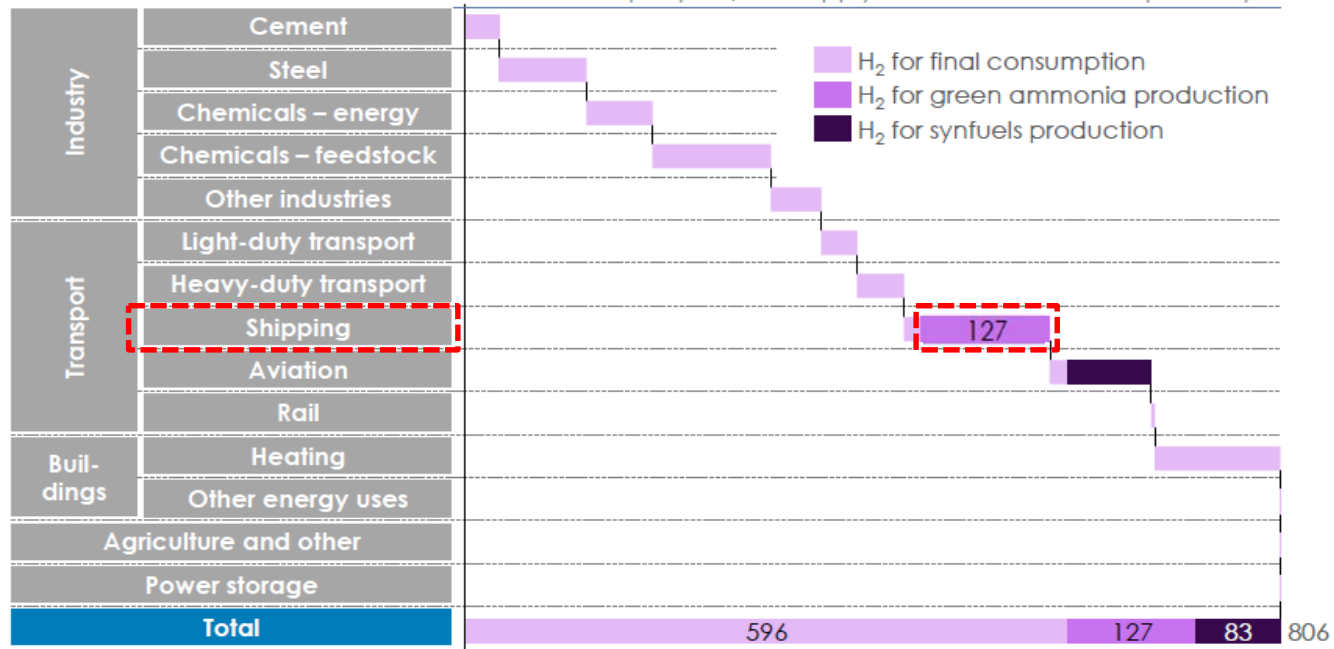
# ETC: Hydrogen can play a key role

- Eg. as ammonia ( $NH_3$ ) in shipping

- Global production of hydrogen today 70 Mt/y
- 130 Mt/y required to supply green ammonia for shipping in the low-carbon scenario

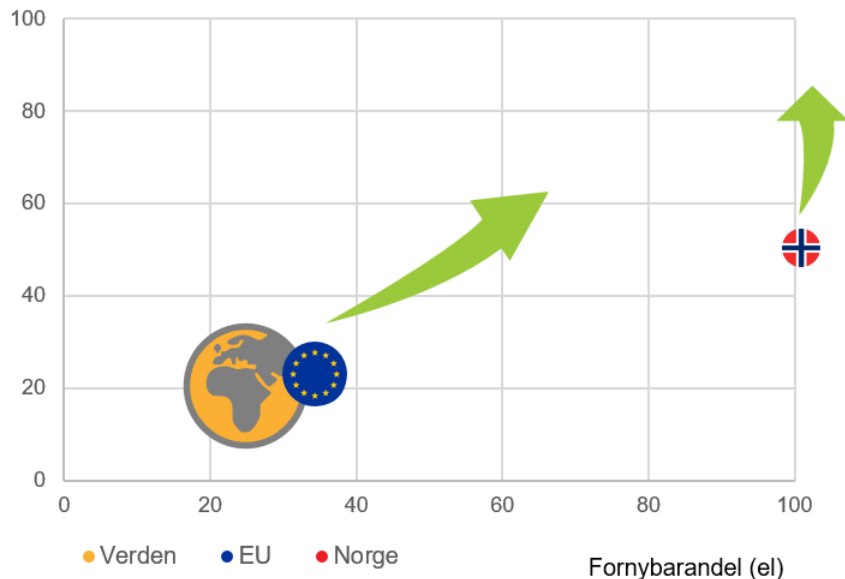
Hydrogen production in a net-zero- $CO_2$ -emissions economy

Million tonnes per year, ETC supply-side decarbonization pathway



# Norge har foreløpig et tydelig forsprang i den grønne omstillingen

Elektrifiseringsgrad



- Utslippsfri kraftproduksjon
- Høy grad av elektrifisering, 50% av totalt energiforbruk i Norge stammer fra elektrisitet
- Andre land må både øke andel fornybar og grad av elektrifisering

*Norge er et av verdens mest elektrifiserte land, og kraftproduksjonen er basert på fornybare energikilder*



# Et fullelektrisk Norge\* i 2050

## – What does it take?



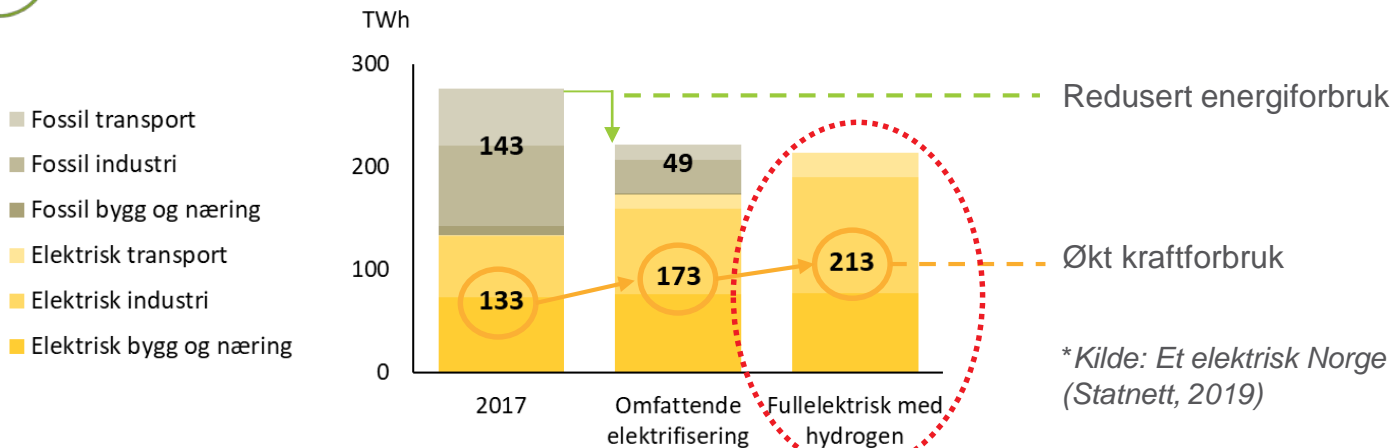
Fossil energibruk erstattes med strøm (og hydrogen laget av strøm)



Mer enn halverer CO<sub>2</sub>-utslippene i Norge



En mulighet for Norge til å kutte utslipp, også innen skipsfart (ca 5 Mt CO<sub>2</sub> i 2017)





# Ammonia for shipping – What does it take?

- 1 Billige fornybare energikilder
- 2 Robust karbonpris
- 3 Krevende kunder



Fremtiden er elektrisk