#GreentoScale

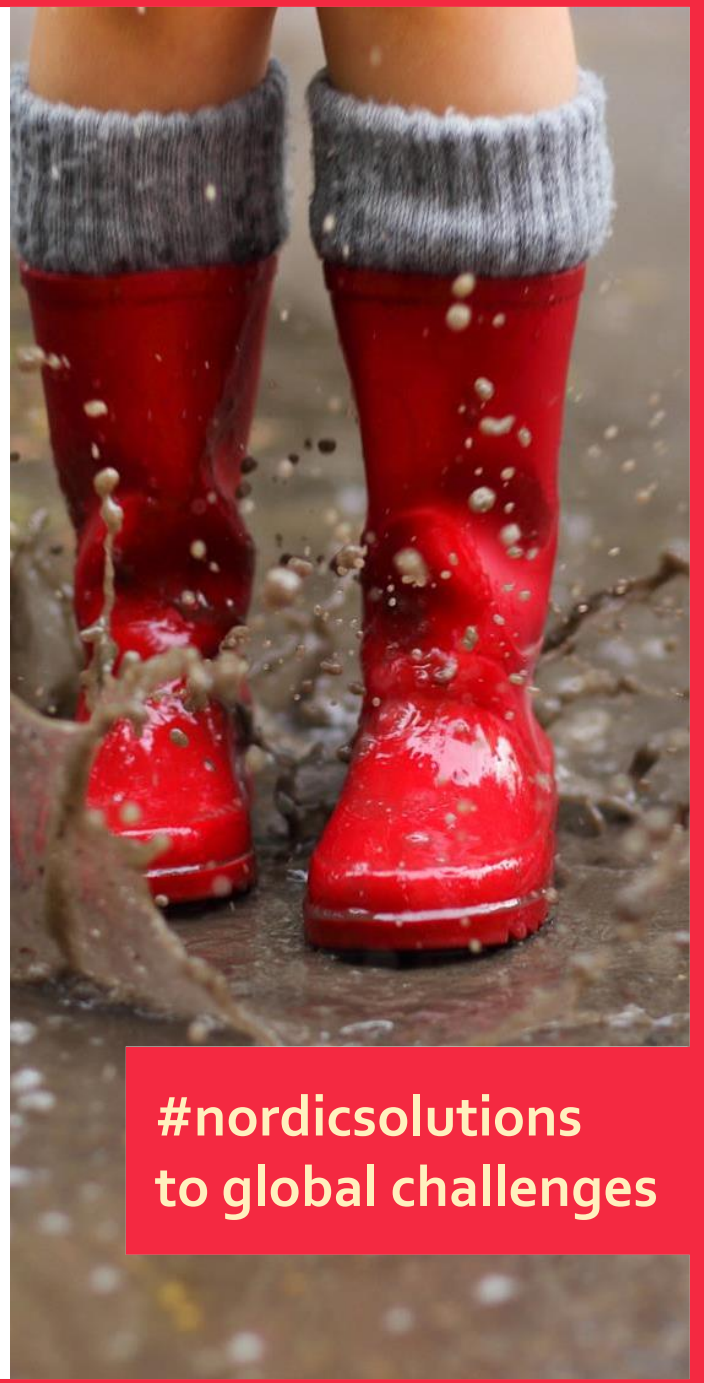
Nordic Green to Scale for Cities and Communities

23 October 2019

Oras Tynkkynen
Finnish Innovation Fund Sitra

Who is behind Nordic Green to Scale

- Project run by the Finnish Innovation Fund Sitra
- Partners include CICERO (NO), CONCITO (DK), Stockholm Environment Institute (SE), University of Iceland (IS) and C40
- Funding kindly provided by the Nordic Council of Ministers (NCM)
- Nordic Green to Scale included in the Nordic Prime Ministers' Initiative Nordic Solutions to Global Challenges



#GreentoScale

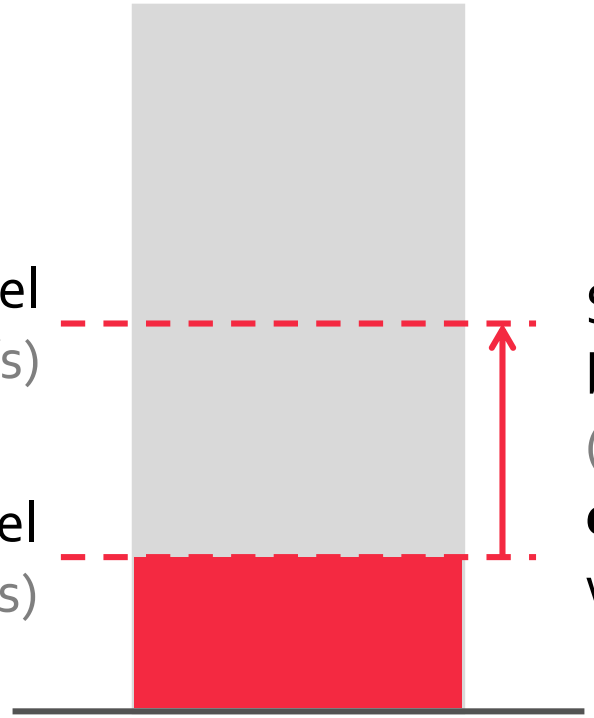
Green to Scale: how far can we go with what we already have?

#nordicsolutions
to global challenges

How does scaling up work?

Benchmark implementation level
(e.g. Oslo's 12% EVs)

Baseline implementation level
(e.g. Finnish average 0.1% EVs)



Total possible implementation pool
(e.g. Finnish car fleet)

Scaling the implementation to benchmark level replaces incumbents (e.g. gasoline cars) and causes an **emissions effect** and a **cost effect**, which determine unit abatement cost

Exciting results in three studies

— **Global Green to Scale** in 2015 in the run-up to the Paris conference
— International partners, Ecofys providing the analysis
— Covered 17 solutions from both the global North and the South

— **Nordic Green to Scale** in 2016
— Nordic partners, CICERO in charge of the analysis
— Analysed the potential of scaling up 15 Nordic climate solutions

— **Nordic Green to Scale for Countries** in 2018
— Nordic partners, SEI producing the analysis
— Looked again at Nordic solutions, focusing on scalability in five European and two African countries

#nordicsolutions to global challenges

Nordic Green to Scale for Cities and Communities

How far could ***Nordic cities and communities*** *go by scaling up proven Nordic climate solutions?*

Cities can be game changers and drivers of ambitious climate action. They are in a prime position to enable sustainable life for their inhabitants and they can implement new policies and solutions quickly.

#nordicsolutions
to global challenges

#GreentoScale

Key results: large potential in scaling up existing climate solutions

#nordicsolutions to global challenges

14 solutions analysed

Energy

1. Onshore wind – Rinkøbing, DK
2. Offshore wind – Copenhagen, DK
3. District heating from waste water – Turku, FI
4. District heating from sea water – Drammen, NO
5. Solar district heating – Marstal, DK
6. District heating from data centre waste heat – Mäntsälä, FI
7. Geothermal district heating – Reykjavík, IS

Buildings

8. Ground source heat pumps – Stockholm, SE

Transport

9. Public transport in urban areas – Helsinki, FI
10. Electric vehicles – Oslo, NO
11. Cycling in urban areas – Copenhagen, DK
12. Electric ferries – Sognefjord, NO

Food and waste

13. Biogas from food waste – Oslo, NO
14. Reduction of retail food waste – Vantaa, FI

But there is more

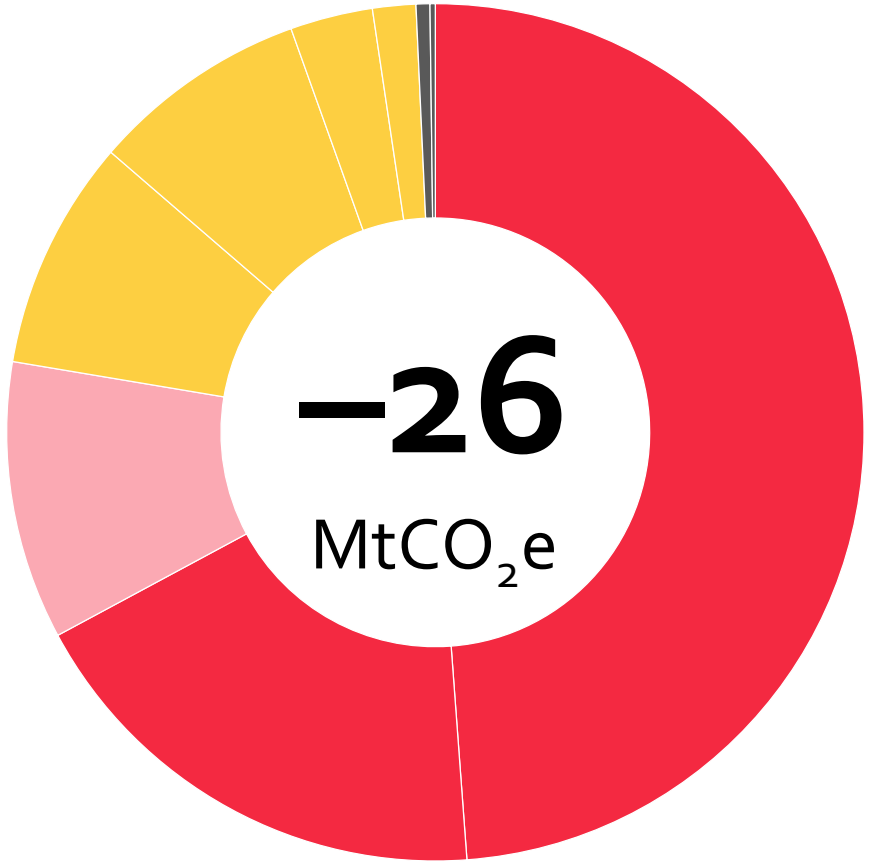
Energy
- Two-way district heating – Turku, FI
- System integration in EnergyLab Nordhavn – Copenhagen, DK
- Carbon capture and storage in rock – Reykjavík, IS

Buildings
- Renovations of old buildings to plus-energy houses – Sandvika, NO
- Wood construction – Växjö, SE
- Semi-deep geothermal heat for buildings – Espoo, FI

Transport
- Renewable methanol – Grindavík, IS
- Mobility as a service – Helsinki, FI
- Shared electric cars – Aarhus, DK
- Electric buses – Reykjavík, IS

Food and waste
- Reduction of city meat and dairy consumption by 50% – Helsinki, FI
- Biochar – Stockholm, SE
- Increased reuse and efficient waste sorting for recycling – Eskilstuna, SE

Significant emissions reduction if other Nordic communities adopt the 14 solutions

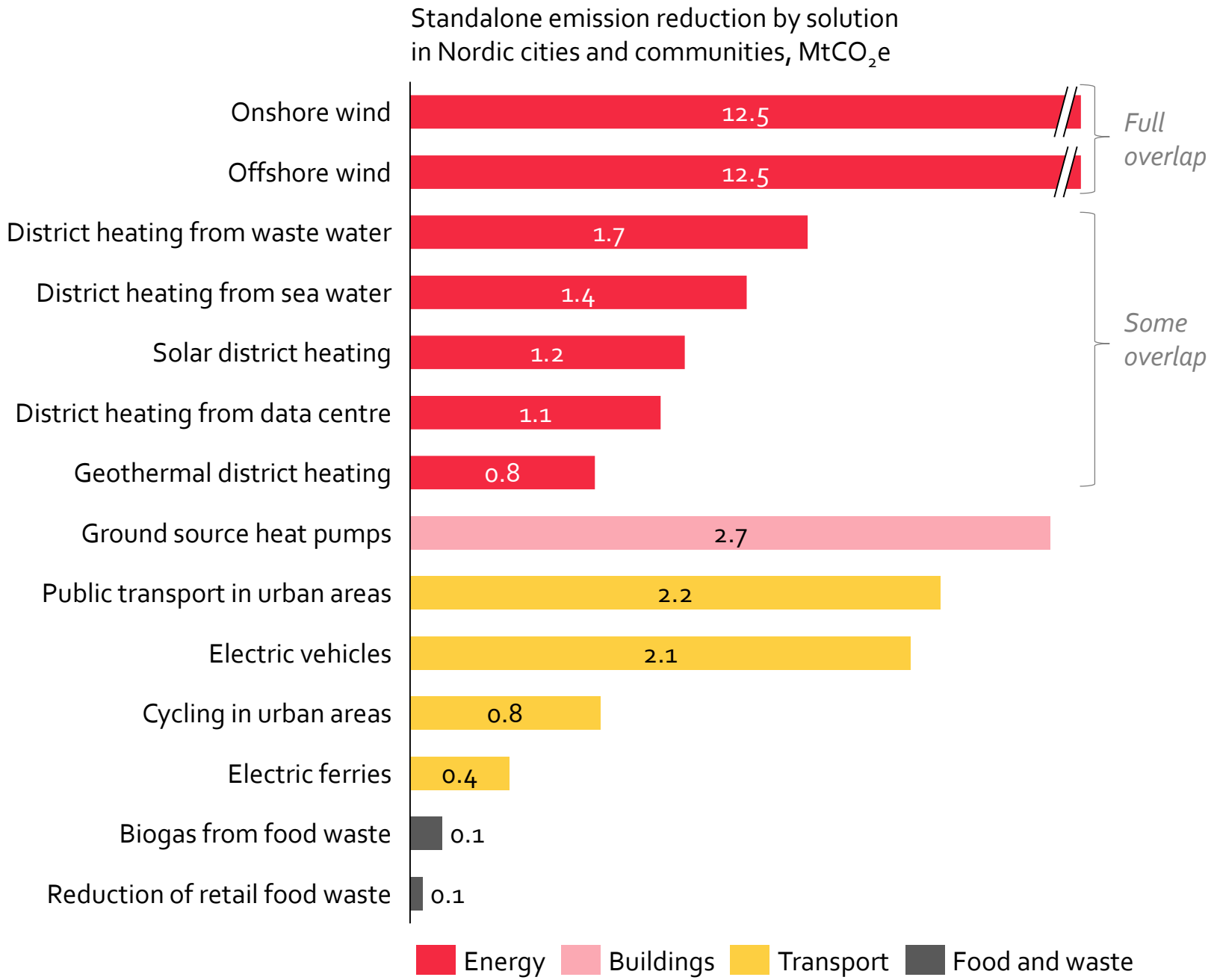


- Energy
- Buildings
- Transport
- Food and waste

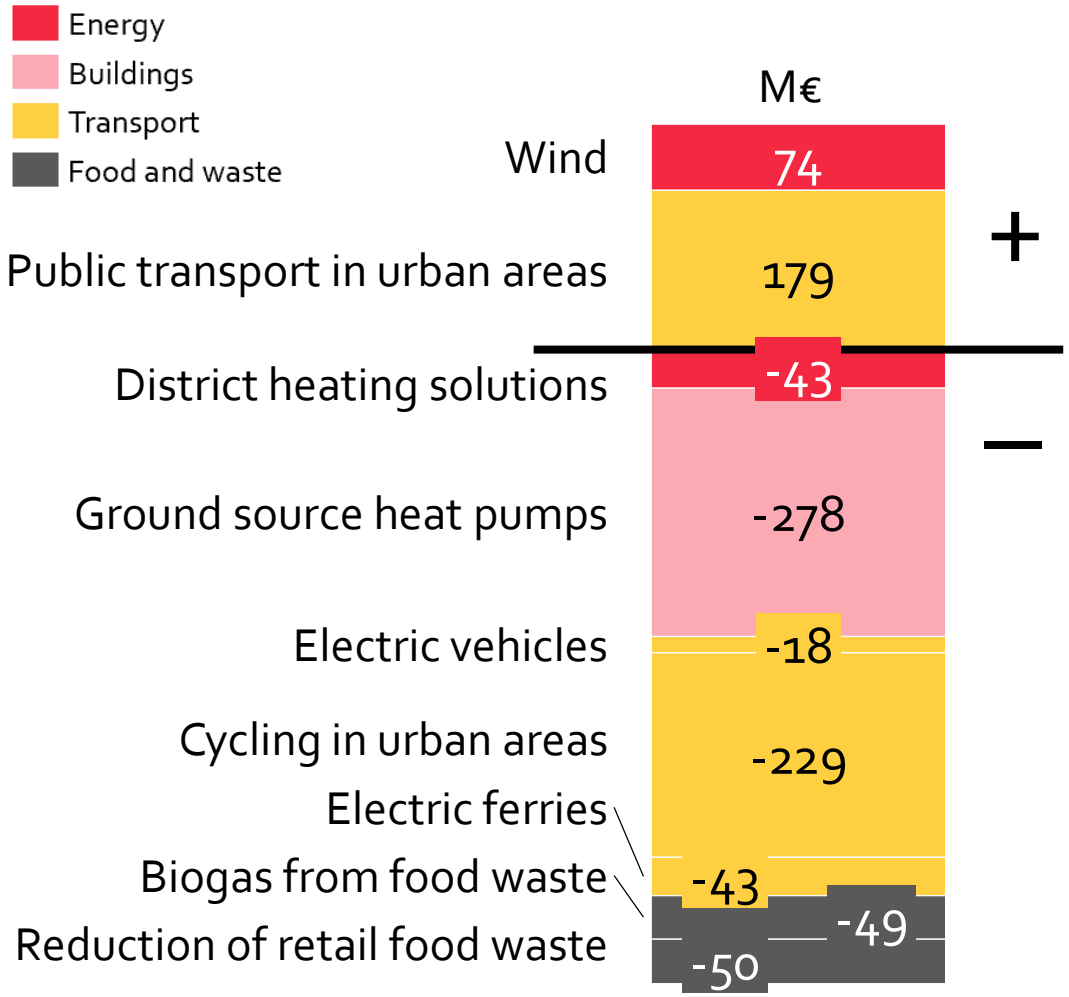
#nordicsolutions to global challenges

Annual emission reduction in Nordic cities and communities when overlap of solutions is accounted for, but synergies are not.

Many solutions have a large climate impact



Solutions bring net savings to communities



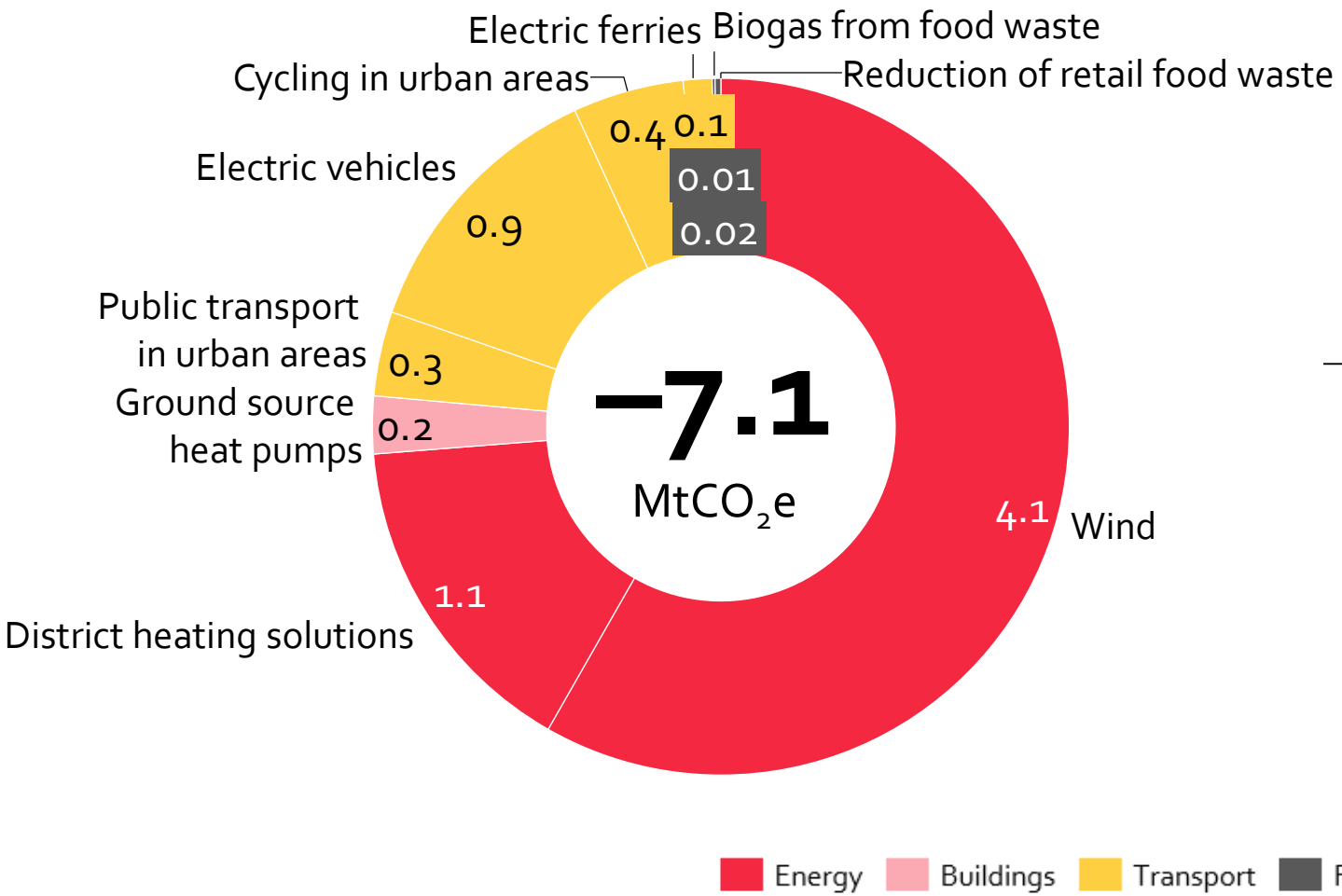
In total

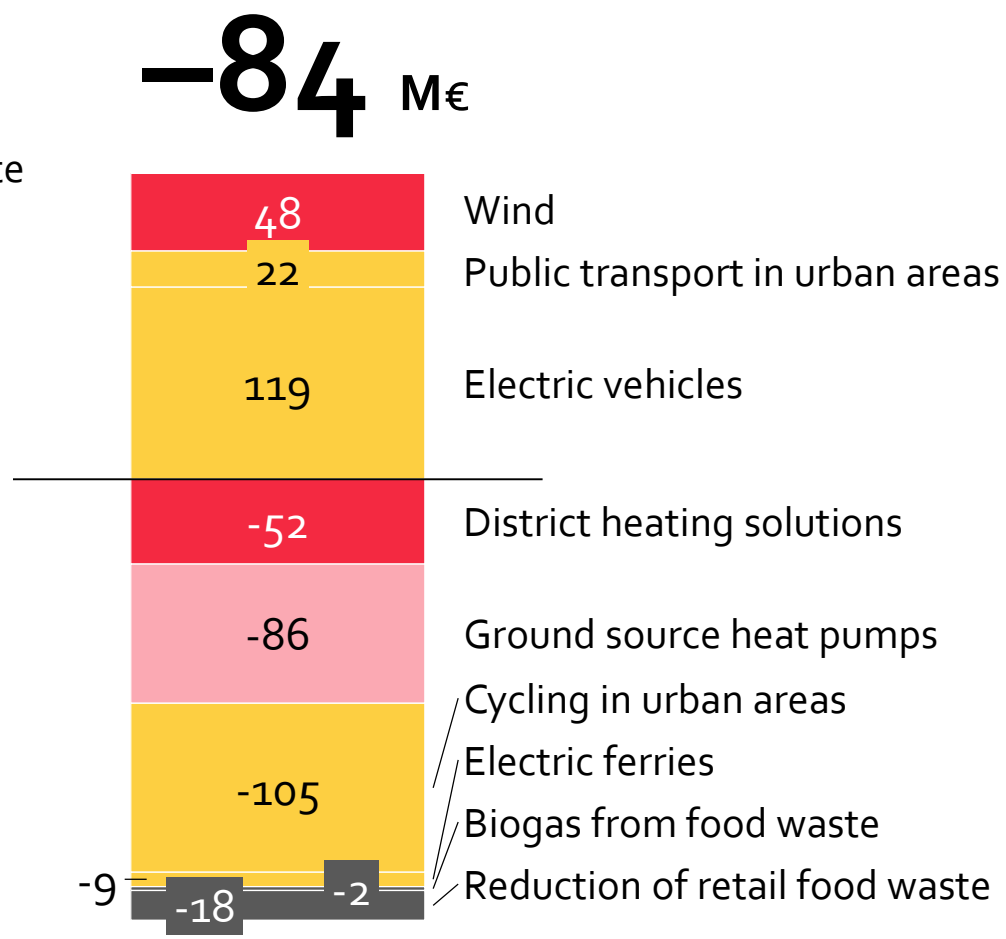
−460 M€

#nordicsolutions to global challenges

Annual net costs in Nordic cities and communities when overlap of solutions is accounted for.

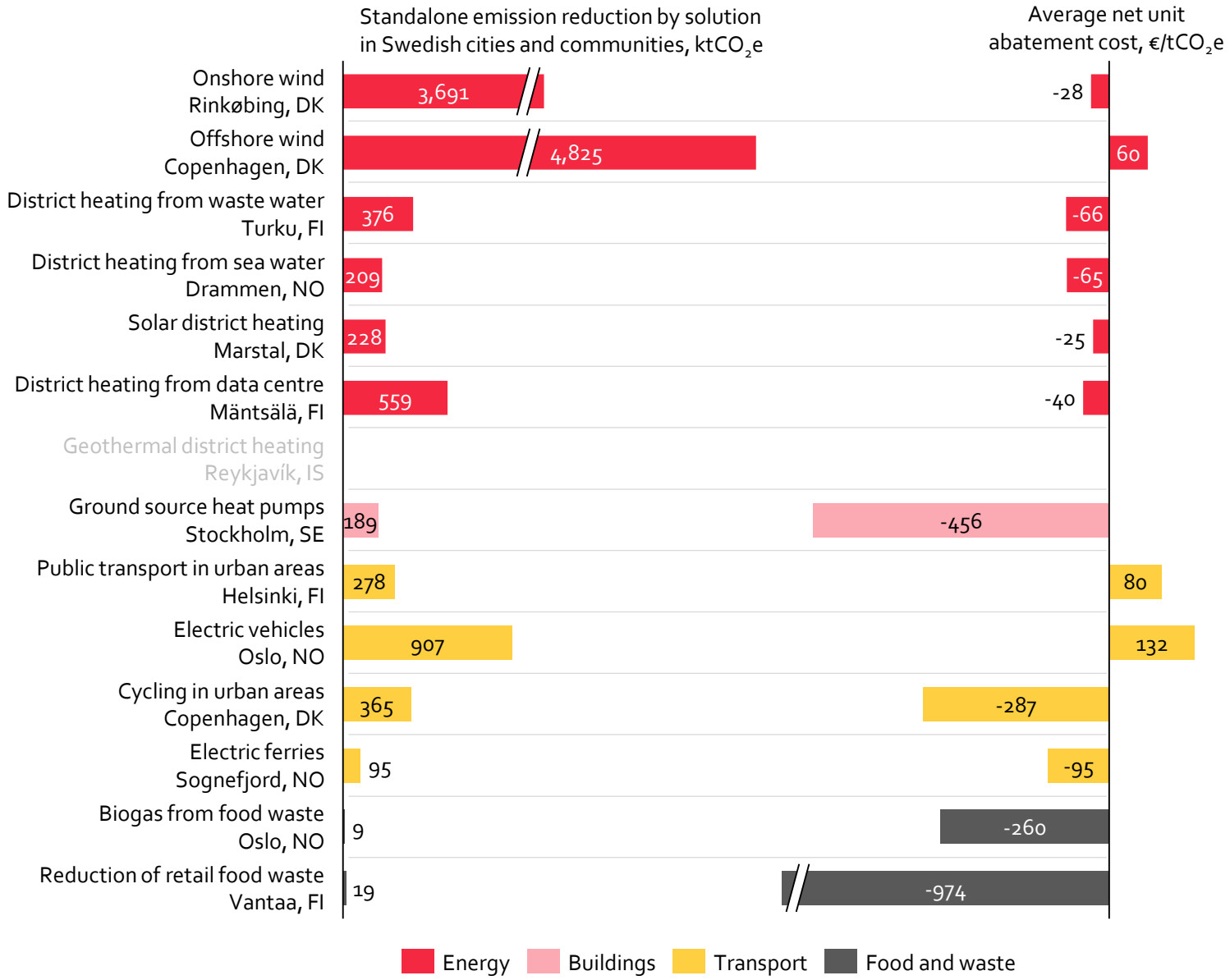
Reductions in Sweden equal to 13% of current emissions





Energy Buildings Transport Food and waste

Standalone emissions reductions and average unit abatement costs by solution in Swedish cities and communities



#GreentoScale

What to make of the results and what next?

#nordicsolutions
to global challenges

What to make of the results?

- The study helps to identify effective existing solutions – and successful tools to deploy them
- Emission reduction potential and cost estimates should be seen as indicative rather than accurate
- All countries, cities and communities have areas where they can learn from the experiences of others – and also where their experiences can be valuable for others
- By learning from each other and sharing lessons learnt, all can move further and faster

Policy recommendations for local level

1. Set a good framework

— set emission **targets** and budgets in line with the Paris Agreement
— introduce sector-specific **strategies** with concrete measures and mechanisms to **monitor progress**
— involve stakeholders and citizens in **dialogue** and decision making about climate action
— collect and **publish data** on emissions and measures to reduce them

2. Harness your tools

— use **land planning** to reduce transport emissions and enable sustainable energy production
— develop **electricity distribution grid** in a forward-looking way to enable electrification
— **incentivise** climate action through congestion charges, parking prices and waste fees
— harness **public procurement** and use the municipality as a testbed for climate solutions
— require **municipality-owned companies** to implement climate solutions
— **cooperate** with neighbouring municipalities in e.g. traffic planning and waste treatment

3. Ensure future success

— recognize and **build capabilities** necessary for decarbonization
— **raise awareness** of climate solutions
— **share experiences** with peers and learn from the experiences of others

Conclusions: solutions exist, leadership needed

- Scaling up existing climate solutions is feasible, affordable and attractive
- Learning from the communities that have already deployed these solutions helps in removing barriers
- Governments have a major role to play in terms of policies to enable deployment of these solutions
- Local action can make a big difference: cities and communities are key in concretely enabling sustainable life for their inhabitants and testing and spreading new solutions

What next?

- Release events in Nordic countries in November 2019
- Events at the UN Climate Conference COP25 in Chile in December
- **Interested? We are open for co-operation!**

#GreentoScale

Thank you

greentoscale.net

#nordicsolutions
to global challenges