

# Carbon Neutral Finland 2035

**Riku HUTTUNEN**

**Director General, Energy Department**

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Ministry of Economic Affairs  
and Employment of Finland



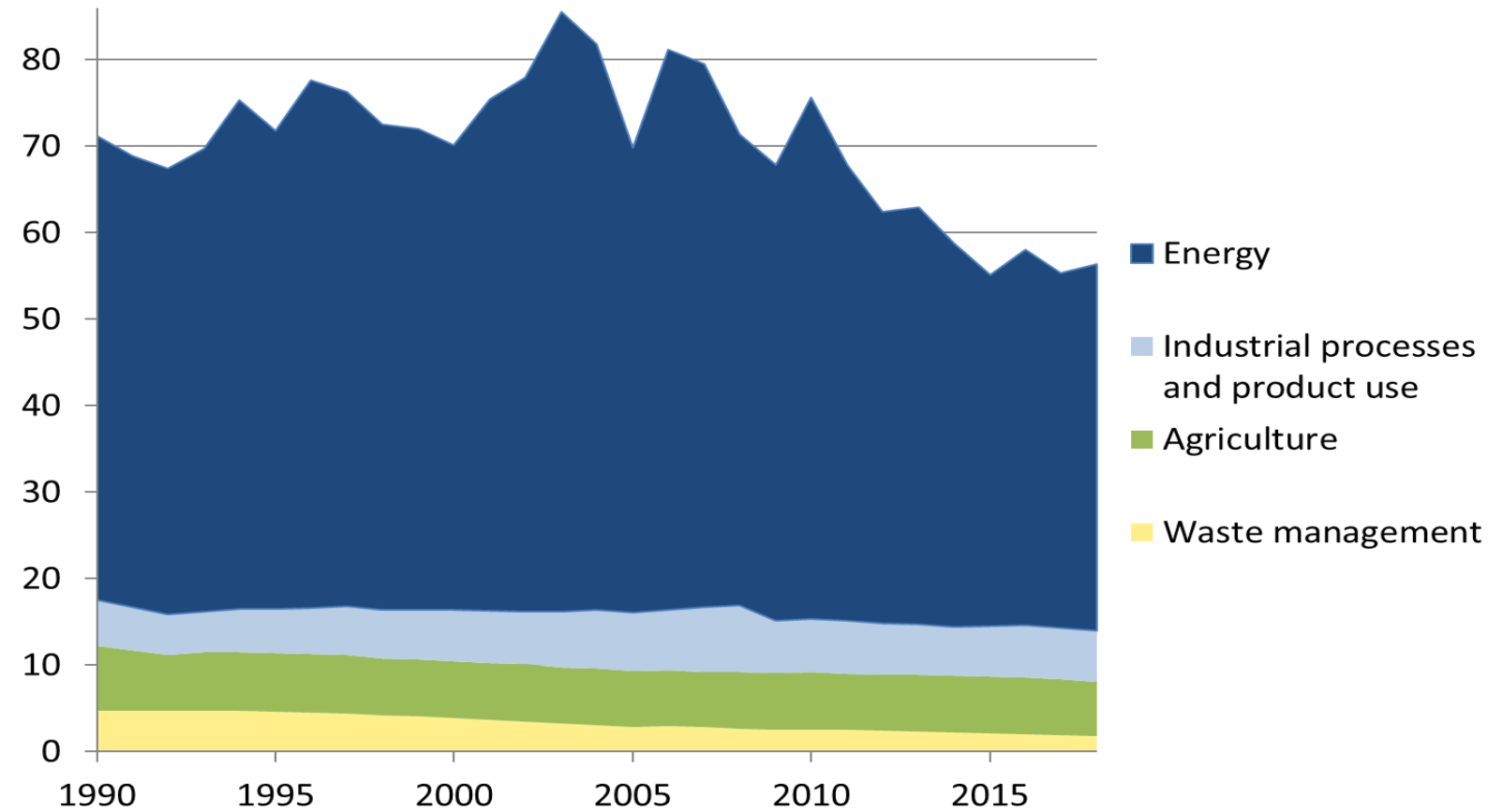
# Starting points

1. **In the long run, sustainable growth and climate policy are not in conflict**
  - However, the path and timing of transition are crucial regarding the costs involved
  - Low-carbon solutions face growing demand globally
  
2. **We need predictable, long-term energy and climate policies for the necessary investments to take place**
  - Energy and climate policies are clearly interlinked: about 75% of GHG emissions are energy use related
  - Investments are long-term (for decades)
  - Capital investors assess thoroughly regulatory and market risks
  - Energy and climate policies must be based on best available data and best estimates of future development

# Greenhouse gas emissions by sector 1990 – 2018\*



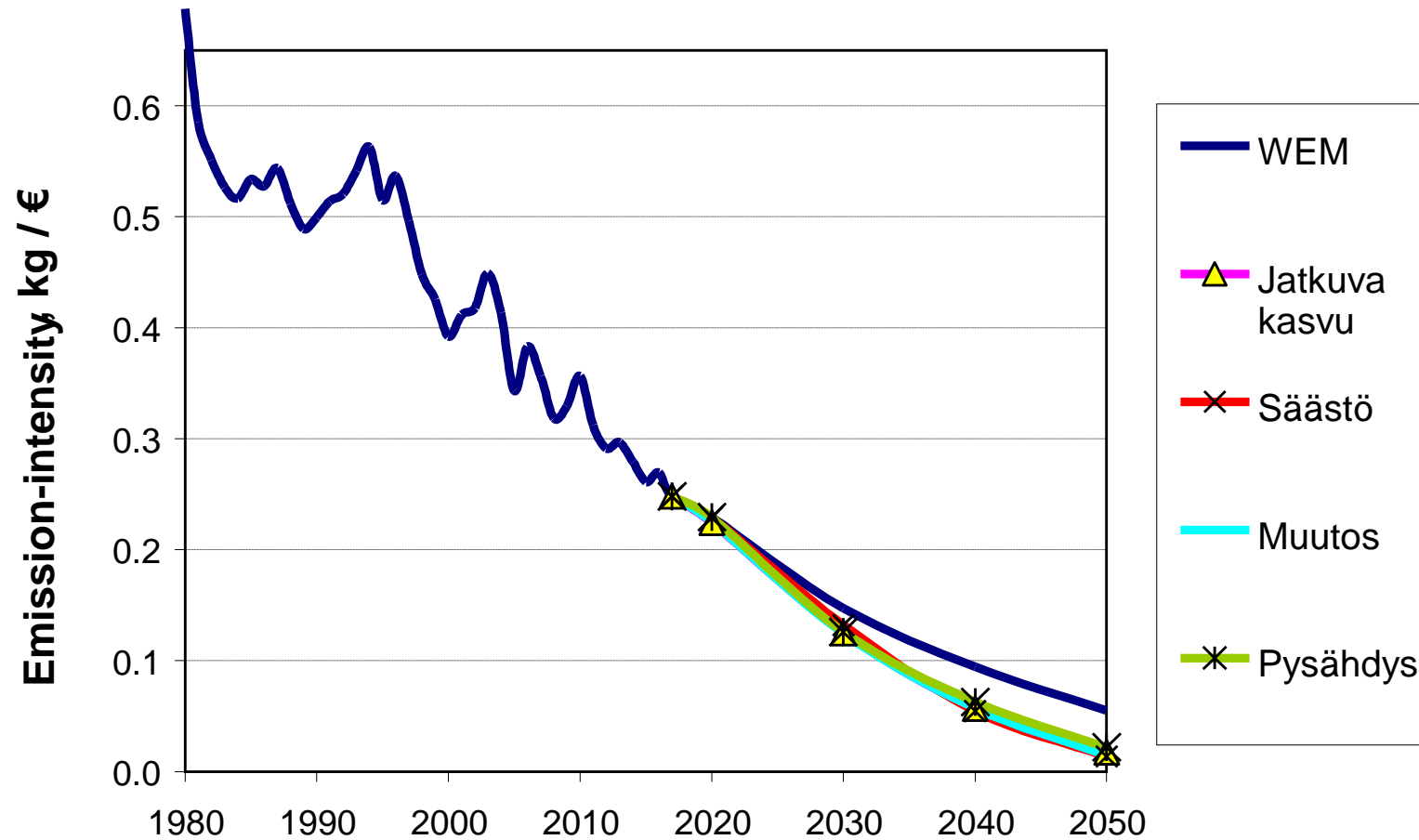
Mt CO2 ekv.



Source: Statistics Finland, \* 2018 proxy estimate

### 3. Our economy will be less and less emission-intensive

- At the same, the marginal cost of cutting GHG emissions becomes higher



Source: Päästöintensiteetin kehitys 1980–2050 (PITKO-selvitys, 28.2.2019 s. 94)



#### 4. Cost-effective measures are needed throughout the society

- In policy planning, GHG emissions and carbon sinks are equally relevant
- However, there are many uncertainties involved concerning carbon sinks in forestry as well as land-use (LULUCF)

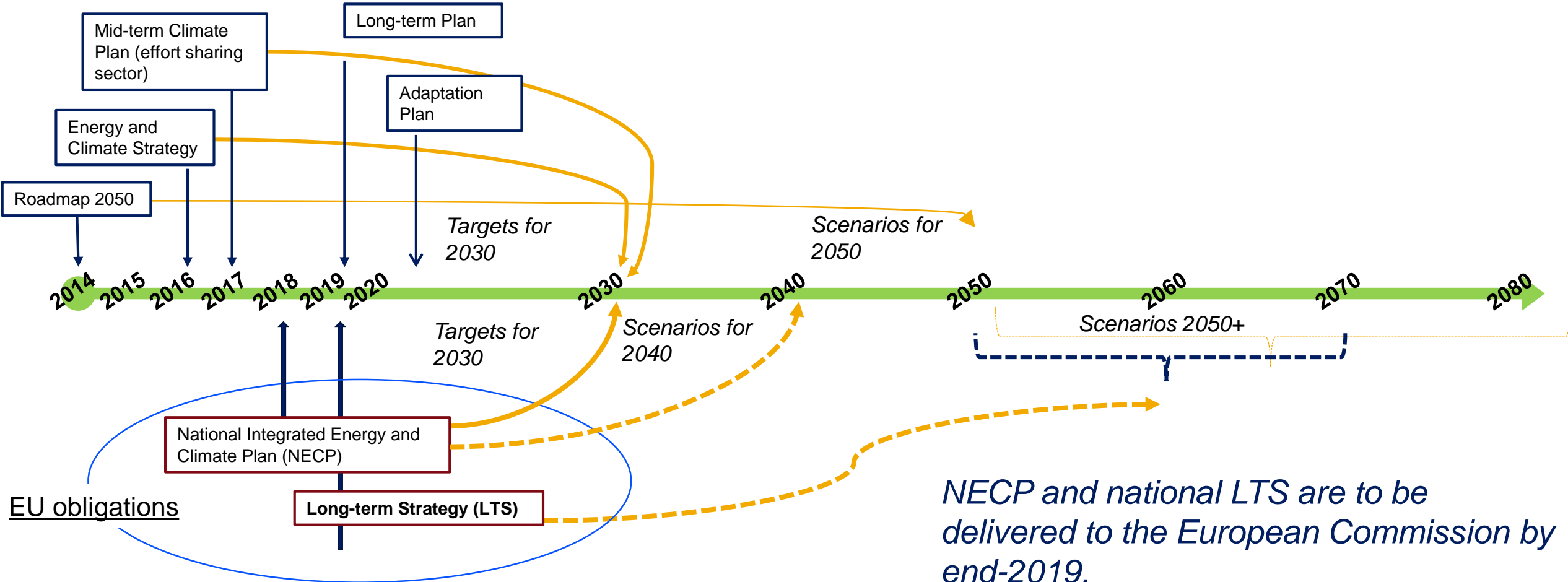
Mt CO <sub>2</sub> -ekv.	1990	2005	2016	2020	2030	2040	2050
LULUCF-WEM	-14,698	-24,400	-21,647	-30,831	-29,592	-39,062	-49,620
LULUCF-LT1			-21,647	-29,665	-32,558	-45,136	-56,954
LULUCF-LT2			-21,647	-30,004	-39,153	-74,095	-94,348
LULUCF-LT2i			-21,647	-30,051	-43,003	-84,730	-111,814

LULUCF-sektorin nielun kehitys vertailu- ja politiikkaskenaarioissa, MALULU-selvitys 28.2.2019, s. 49

# 5. National Strategies and Plans & EU Planning Obligations



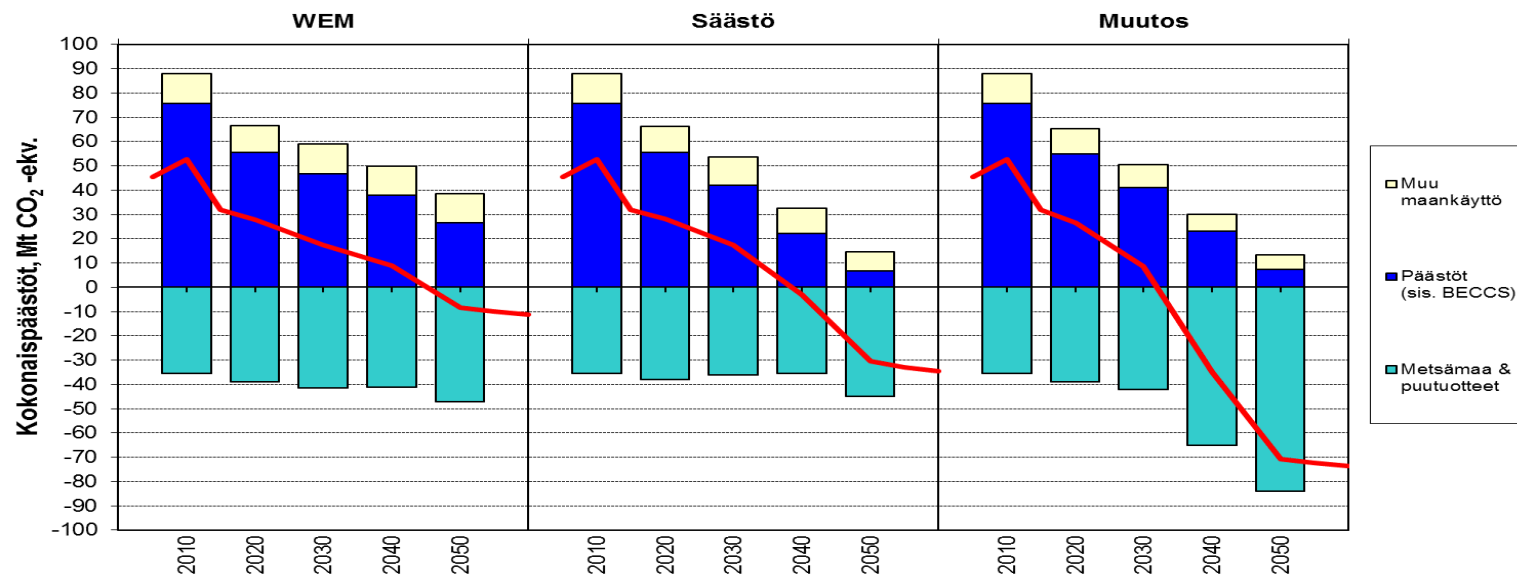
## National strategies and plans



## 6. According to the existing studies, Finland might become carbon neutral by 2040 (PITKO by VTT and SYKE)



- Wood harvests & carbon sink development as a key issue. "Muutos" scenario is based on 65 Mm<sup>3</sup>/a wood harvests, other scenarios on 80 Mm<sup>3</sup>/a.
- The speed of industrial transition, technological development etc.? (many scenarios)



Source: PITKO-selvitys 28.2.2019, sivu 92



## 7. Longer run: emissions can be effectively cut by 85-90% by 2050

- Marginal costs increase sharply when close to 90% decrease
- Global development of technologies is decisive in many ways
- BECCS development also a key factor
- Finnish electricity production is already 80% emission-free and soon more due to Olkiluoto 3 nuclear power unit starting production in 2020
- The whole energy production can be made practically carbon-neutral
- The most challenging sectors to decarbonise:
  - Agriculture
  - Cement production
  - Crude oil refineries



# Programme of Prime Minister Antti Rinne's Government: Carbon neutrality by 2035



The Government will work to ensure that **Finland** is carbon neutral by 2035 and carbon negative soon after that. We will do this by accelerating emissions reduction measures and strengthening carbon sinks.

The Government is committed to reforming the climate policies of the **European Union** and Finland so that we can do our part to limit the global mean temperature increase to 1.5 degrees Celsius. Finland aims to develop the EU's long-term climate measures so that the EU can achieve carbon neutrality before 2050. This means tightening the emissions reduction obligation for 2030 to at least 55 per cent below the 1990 emissions level.

We will continue our **Nordic** climate and energy cooperation in order to achieve carbon neutrality and will work to strengthen the position of the Nordic countries as leaders in international climate policy.

# Programme of Prime Minister Antti Rinne's Government: decarbonising energy sector



Finland aims to be the world's first fossil-free welfare society.

Electricity and heat production in Finland must be made nearly emissions-free by the end of the 2030s while also taking into account the perspectives of security of supply and servicing.

# How to achieve carbon neutrality by 2035?



## Strategic level:

- In the long term, the essential task is to minimise the use of fossil fuels and to develop carbon sinks.
- To start with, we need better understanding on cost-effective roads towards 2035. PITKO study will be updated during autumn. The most relevant issue is how to accelerate decarbonisation even further cost-effectively and taking into consideration the potential speed of technological development.
- Energy-intensive sectors like steel, forest and chemical industry are in focal role, especially regarding the costs and economic effects of low-carbon transition. Agriculture and transport are equally important.
- Updates are needed for final NECP and LTS which will be provided to the European Commission by the end of 2019.
- Accordingly, national strategies will be updated in 2020/2021.

# How to achieve carbon neutrality by 2035?



## Tools:

- In general, regulation, subsidies and taxation should promote transition to low-carbon economy. Due to EU obligations, there is a need to focus now on Effort Sharing Sector, especially transport.
- According to the Government Programme, there will be a specific focus on energy taxation, sectoral low-carbon roadmaps, biogas programme etc.
- Operating aid is decreased, and stronger focus will be on innovation financing.
- EU instruments, especially Emissions Trading System, are essential instruments in transition.
- Low-carbon energy technologies need to be developed (R&D&I, deployment) in all fronts. Smart as well as resource-efficient solutions are important. Sector coupling is necessary for flexibility.
- Well-functioning energy markets and operating environment in general play a big role.

# Finnish presidency programme in the field of energy and climate

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# THE EU AS A GLOBAL LEADER IN CLIMATE ACTION

- “The EU should raise its profile as a global leader in climate action by adopting a long-term climate strategy (LTS) aimed at making the EU carbon neutral by 2050. ”
- “Finland’s Presidency will continue to facilitate the process in order to define the key elements of the EU’s long-term climate strategy in the European Council by the end of 2019.”
- Discussions on LTS take place in various Council formations, e.g. informal Competitiveness ministers’ meeting 4/5 July in Helsinki.
- Targets are necessary, but tools and measures are equally important.

# ENERGY COUNCIL – THE AGENDA

- New Strategic Agenda
- Implementation of the Energy Union
- Draft National Energy and Climate Plans
- Innovative technologies promoting climate neutrality
  
- Legislative files
  - Tyre labelling regulation: (poss.) Final agreement
- Multiannual Financial Framework files
  - Advancing the files as much as possible, depending on the progress of the overall negotiations



# SMART SOLUTIONS FOR A COMPETITIVE AND CLIMATE NEUTRAL EUROPE

- The urgency of climate action is evident
- A global business opportunity
- Potential game changers
  - Digital economy
  - Breakthrough innovations, e.g. in AI, IoT or materials science
  - Power-to-X (“electricity for anything”)
- More coordinated action needed in European R&I
- Single market helps European industries
- Global climate action is crucial for European industry
- The EU Energy Union governance provides a cross-sectoral policy framework (NECPs, LTS)





# KEY DATES

- Energy Council, 24 September 2019, Brussels
  - National Energy and Climate Plans
  - Beyond 2030: National Long-term strategies
  - Innovative energy technologies
- SET-Plan Conference, 13-15 November 2019, Helsinki
  - Strategic energy technologies
- Energy Council, 4 December 2019, Brussels



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