The European Green Deal
Reinventing the EU’s Economy

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What do people think?
Most important issues the EU is facing at the moment

Source: Eurobarometer
What do experts think?  
Global Risks: social & environmental risks on top

<table>
<thead>
<tr>
<th>Likelihood</th>
<th>Impact</th>
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</thead>
<tbody>
<tr>
<td>1. Extreme weather events</td>
<td>1. Weapons of mass destruction</td>
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<tr>
<td>2. Natural disasters</td>
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<td>3. Cyberattacks</td>
<td>3. Natural disasters</td>
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<td>4. Data fraud or theft</td>
<td>4. Failure of climate-change mitigation and adaptation</td>
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<td>5. Failure of climate-change mitigation and adaptation</td>
<td>5. Water crises</td>
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<td>6. Large-scale involuntary migration</td>
<td>6. Cyberattacks</td>
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<td>7. Man-made environmental disasters</td>
<td>7. Food crises</td>
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<td>8. Terrorist attacks</td>
<td>8. Biodiversity loss and ecosystem collapse</td>
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<td>9. Illicit trade</td>
<td>9. Large-scale involuntary migration</td>
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<td>10. Asset bubbles in a major economy</td>
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Issues are very much connected

What does this mean in terms of strategy development and policy making?

Sustainable Development is therefore more than ticking the boxes of the 17 SDGs.
In other words: how to get in the ‘safe and just space for humanity’?
In a world where the Global Economy is Shifting East & Geopolitics is everywhere

Share of developing Asia in total world GDP (constant 2011 international $ PPP)

Annual sales of electric vehicles

Source: World Bank

Source: Joint Research Centre, Bloomberg New Energy Finance
Chinese companies needed less than 15 years to take over the solar photovoltaic sector.
Largest companies by market capitalisation

<table>
<thead>
<tr>
<th>Rank</th>
<th>Company Name</th>
<th>Market Cap. (billion Euro)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tesla Inc</td>
<td>46.47</td>
</tr>
<tr>
<td>2</td>
<td>Orsted A/S</td>
<td>26.19</td>
</tr>
<tr>
<td>3</td>
<td>Verbund AG</td>
<td>15.08</td>
</tr>
<tr>
<td>4</td>
<td>Vestas Wind Systems A/S</td>
<td>13.70</td>
</tr>
<tr>
<td>5</td>
<td>BYD Co Ltd</td>
<td>13.67</td>
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<tr>
<td>6</td>
<td>Samsung SDI Co Ltd</td>
<td>12.96</td>
</tr>
<tr>
<td>7</td>
<td>Novozymes A/S</td>
<td>11.18</td>
</tr>
<tr>
<td>8</td>
<td>Sociedad Quimica y Minera de Chile SA</td>
<td>9.86</td>
</tr>
<tr>
<td>9</td>
<td>Daqo New Energy Corp</td>
<td>9.20</td>
</tr>
<tr>
<td>10</td>
<td>Siemens Gamesa Renewable Energy SA</td>
<td>8.82</td>
</tr>
<tr>
<td>11</td>
<td>NIO INC - ADR</td>
<td>7.43</td>
</tr>
<tr>
<td>12</td>
<td>EDP Renovaveis SA</td>
<td>6.87</td>
</tr>
<tr>
<td>13</td>
<td>Kingspan Group PLC</td>
<td>6.67</td>
</tr>
<tr>
<td>14</td>
<td>Xinjiang Goldwind Science &amp; Technology Co Ltd</td>
<td>5.79</td>
</tr>
<tr>
<td>15</td>
<td>Meridian Energy Ltd</td>
<td>5.52</td>
</tr>
<tr>
<td>16</td>
<td>China Longyuan Power Group Corp Ltd</td>
<td>5.21</td>
</tr>
<tr>
<td>17</td>
<td>Energy Absolute PCL</td>
<td>5.20</td>
</tr>
<tr>
<td>18</td>
<td>Nibe Industrier AB</td>
<td>5.08</td>
</tr>
<tr>
<td>19</td>
<td>Cree Inc</td>
<td>4.60</td>
</tr>
<tr>
<td>20</td>
<td>Universal Display Corp</td>
<td>4.56</td>
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</tbody>
</table>

Source: New Energy Global Innovation Index (NEX), 7 February 2017
And where **Demographic Trends** will make things even **more challenging**
How to translate this into the next European Commission’s European Green Deal?

An impressive number of policy initiatives across the board

- European Climate Law to enshrine the 2050 climate-neutrality target into law
- Emission Trading System extension
- Carbon Border Tax
- Energy Taxation Directive review
- Industrial and Innovation Strategy with a dedicated SME strategy
- Just Transition Fund
- European Climate Pact
- Strategy for Green Financing
- Sustainable Europe Investment Plan (€1 trillion) and turning parts of the EIB into Europe’s Climate Bank
- Increase the EU target for 2030 to 55% (based on social, economic and environmental Impact Assessments) and lead international negotiations to increase the level of ambition of other major emitters by 2021
- Biodiversity Strategy for 2030
- “Farm to Fork” Strategy
- Cross-cutting strategy to move towards a zero pollution ambition and protect citizens’ health
- New Circular Economy Action Plan (textiles and construction) and Single Use Plastics Strategy
- Highest trade standards of climate, environmental and labour protection
- Comprehensive strategies on Africa and the neighbourhood
- Conference on the Future of Europe and a European Democracy Action Plan
- Refocus the European Semester into an instrument that integrates the SDGs
- Action Plan to fully implement the European Pillar of Social Rights
No silver bullet: a mixture of policy tools will have to be activated jointly

**Directionality, credibility**
- Visions and pathways
- Long-term targets
- Scale and speed
- Foresight

**Environment and sectoral policies, e.g.**
- Carbon pricing
- Strict regulation
- Removing barriers (e.g. subsidies)

**Coordination across sectors, scales**
- Policy coherence and consistency
- Mission-oriented innovation
- Polycentric governance
- Stakeholder platforms, networks

**Innovation policies, e.g.**
- R&D
- Experiments
- Network building
- New entrant support

**Industrial policy, e.g.**
- Specific visions
- Market creation
- Adoption subsidies
- Backing winners

**Welfare, education policies**
- Compensating losers
- Offsetting inequities
- Retraining

Source: Geels; Hans Bruyninckx, EEA
Requires a new socio-economic model

Not a single country has achieved a high human development within planetary boundaries

How to get there?
Should we redefine success?

Global material extraction is growing continuously.

Since 1970, 60% of the world’s vertebrate animals have been wiped out.

Source: European Commission, EIP on Raw Materials, Raw Materials Scoreboard 2018, based on UN Environment Programme (historic data) and Hatfield-Dodds et al. (2017) (projections).

Source: Living Planet index, WWF/ZSL. Note: shaded areas show the statistical uncertainty surrounding the trend. Visual source: The Guardian.
Possible impacts of climate-related natural disasters on the economy

Source: Bank of England
Opportunities need to be made visible and captured

Environmental economy growing faster than overall economy

The number of smart homes in the EU is expected to increase tenfold by 2021

*Homes which use digitally controlled lighting, heating, ventilation, air conditioning, security, as well as home appliances

Source: Eurostat, European Commission  
Source: European Commission
All actors throughout the finance value chain will have to be on board.
There is the risk of overlooking the intersections between social & environmental policy, thereby compromising both

EU planning well ahead for the transition in coal regions

More Europeans unable to pay their utility bills in recent years

Source: European Commission (DG JRC, DG REGIO).

Source: Eurostat, Energy poverty indicator
New forms of employment require a reinvention of the Social Contract

Intergenerational divide: the incidence of non-standard employment

At risk of poverty, percent of total

Source: World Bank, 2018

Source: Eurostat
Fiscal unsustainability: about demographic ageing and more

The old-age dependency ratio will continue rising across Europe

Note: This chart shows old-age dependency ratios — defined as the number of people aged 65 or over as a percentage of the working-age population (i.e. people aged 15-64).

Source: Eurostat and European Central Bank calculations
Sources of revenue are coming under ever greater pressure

Evolution of taxes over time, OECD countries, indexed to 2000

The share of national income paid to workers has been declining in many countries

Source: OECD

Source: IMF, 2017
What about the outsourcing of unsustainable practices?

China and India produce carbon-intensive products for consumption by Americans and Europeans.

Source: KGM & Associates; Global Efficiency Intelligence, 2018 ‘The Carbon Loophole in Climate Policy: Quantifying the embodied carbon in trade products’
'Others should...': Individual consumption is the elephant in the room

Meat is the most resource-inefficient form of food

Land area needed to produce one unit of protein by food type (in m²)

- 21 kg → 1 kg
- 2 kg → 1 kg
- 2.8 kg → 1 kg
- 4.5 kg → 1.2 kg
- 9 kg → 1 kg
- 25 kg → 1 kg
- 12 kg → 1 kg

Where one lives also matters

Average carbon emissions per household by selected neighbourhood types (tonnes)

- Exurban: 0.7 to 1 dwelling units per acre
  - 8.47 tonnes
- Suburban: 3 to 4 dwelling units per acre
  - 5.25 tonnes
- Urban average: 30+ dwelling units per acre
  - 4.2 tonnes
- Carless urban average: 60+ dwelling units per acre
  - 1.29 tonnes

Source: Our World in Data, Clark & Tilman, 2017

Source: Country of Cities
Innovation may not always lead to sustainable outcomes

Total R&D expenditure in billions of current purchasing power standards, 1981-2017

Source: Values extracted by DG Research and Innovation, European Commission, based on data from Eurostat, OECD, UNESCO
In practice? A more strategic approach is required

➢ Tomorrow’s Mobility System
The transition towards a low-emission mobility: an increasingly complex eco-system
A wide range of complementary regulatory and enabling measures have been adopted which will accompany the low-emission ever more electrified mobility transition.

We should not be naïve: the competition is fierce. Asia is leading on Battery manufacturing.

It's not only about cars.

Global EV lithium-ion battery manufacturing capacity.

How is Europe doing?

The European batteries market is projected to increase by a factor 4 to 10 between today and 2025.

Source: JRC, InnoEnergy, EPSC

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Strong
- Research in future active materials
- Pack development, BMS
- Applications/System integration

Lagging
- Raw material supply
- Active materials (industry)
- Cell manufacturing (low volume, non-competitive in mass markets)

Neutral
- Recycling - globally under-developed area
- Research and Innovation in all non active materials area
What is Europe's response?

FROM

- Vehicle-centered emission targets
- Fragmented support in innovation and infrastructure

TO

- 3 Mobility packages addressing supply and demand of low-emission vehicles with regulatory and enabling measures
- New Industrial Policy Strategy
- The European Battery Alliance as a result of the 2017 Mobility Packages
- Strategic Action Plan on the way forward adopted in May 2018
The way forward

HOW?

The European Commission supports efforts of the European industry, Member States and the European Investment Bank, to establish a competitive manufacturing chain, capture sizeable markets and boost jobs, growth and investment across Europe.

- Project team approach
- Industry-led comprehensive workstream with more than 120 European (and non-European) stakeholders representing the whole value chain
- Dialogue with EU Member States

BATTERY ACTION PLAN

- Securing the supply of raw materials
- Supporting projects covering different segments of the battery value chain, including cell manufacturing
- Research and innovation to support a competitive batteries value chain
- Making Europe the global leader in safe and sustainable battery technology
- Developing and strengthening a skilled workforce
- Creating and enforcing an enabling and regulatory framework that is supportive of battery demand
A new way of working together

Participants of Battery Alliance workshops 2017-2018 (Industry)
What's next?

IT'S HAPPENING

But will it be a **battery value chain in Europe** or a **European battery value chain**?

FOLLOW-UP

- Secure implementation of the Action Plan
- Continue engagement with stakeholders (social partners and member states)
- Reflect on:
  - ways to **speed-up** delivery (e.g. developing standards takes 4 years!)
  - how this approach could be used for **other strategic sectors**
Time for systemic change

**FROM**
- Natural resource and habitat over-exploitation, fossil-fuel based economy
- Produce-consume-dispose (linear) model
- Focus on GDP growth
- Society based on growing private resource consumption (cars, unused properties)
- One-size-fits-all environmental policy
- Labour market: ‘insiders’ covered by social protection vs ‘outsiders’ living precariously
- Minimising fiscal expenditure even in difficult times
- Treating emissions as geography-constrained (each country has its own independent targets)
- Profit-driven innovation and investment
- Box-ticking silos that miss the bigger picture and fail to achieve synergies

**TO**
- Respect for planetary boundaries and climate-neutral economy
- Circular economy (closed loop) and restoration of ecosystems
- Moving beyond GDP to welfare and sustainability oriented metrics
- Shared public consumption of limited resources (public transport, efficient housing)
- Inequality-sensitive policy, multilevel and multi-stakeholder approach
- Integrating all forms of work into fortified social protection systems
- Focus on strengthening the revenue base (addressing tax dodging, taxing capital rather than labour)
- Addressing emissions outsourcing to poorer countries via trade
- Mission-oriented innovation and sustainable finance
- System-wide approach to change

Source: EPSC
Thank you for your attention

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