

# LoT-NET: WP4

## Advisory Board 1

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# **WP4: Determine key end use and business requirements for timely adoption**

## **WP4.1: Understanding household priorities** [LDS Year 2]

Determine what a low-temperature network needs to deliver to users, including service requirements such as comfort, hygiene, affordability and barriers / enablers

## **WP4.2: From user requirements into technology design** [LDS Year 2-3]

Identify user requirements to inform technology development and design

## **WP4.3: Consumer engagement with low carbon heating and cooling**

[LDS Year2-3]

Determine information provision to assist consumers in their engagement with low-temperature heating and cooling systems and how this might impact on demand shifting

## **WP4.4: Energy transitions and competing for investment** [WBS Year 1, 4]

Low temperature networks as competing investments in the energy transition

## **WP4.5: Low temp heat networks as an innovation system** [WBS Year 2-4]

Assessing market penetration for low temperature networks as an innovation system requiring the cooperation and participation of a network of organisations along with policy and regulatory frameworks, standards and skills development.

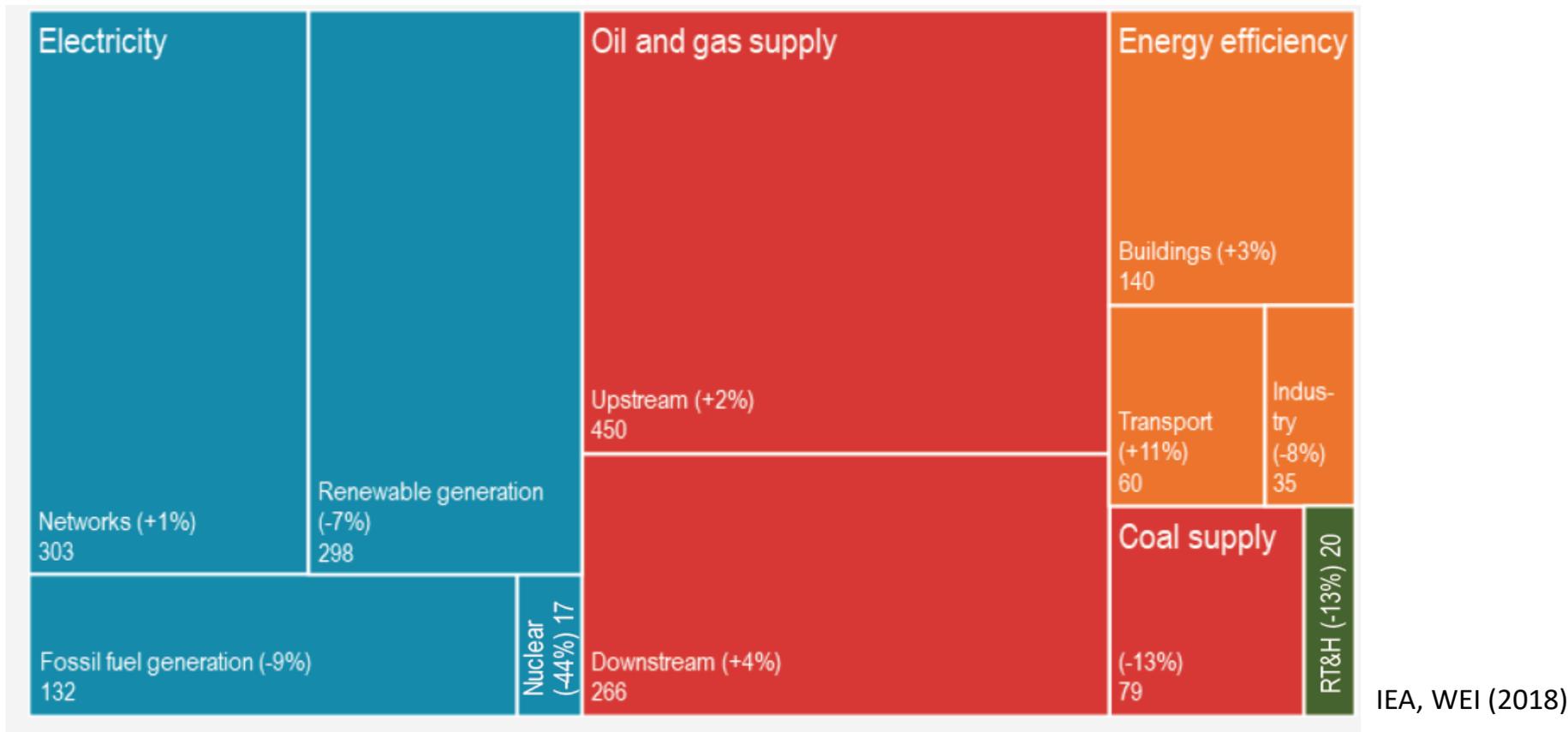
# WP4.4: Energy transitions and competing for investment

- Low temperature networks **are in competition** for investment against other choices for energy **supply, storage and consumption**
- There could be a shift on the following spectra:

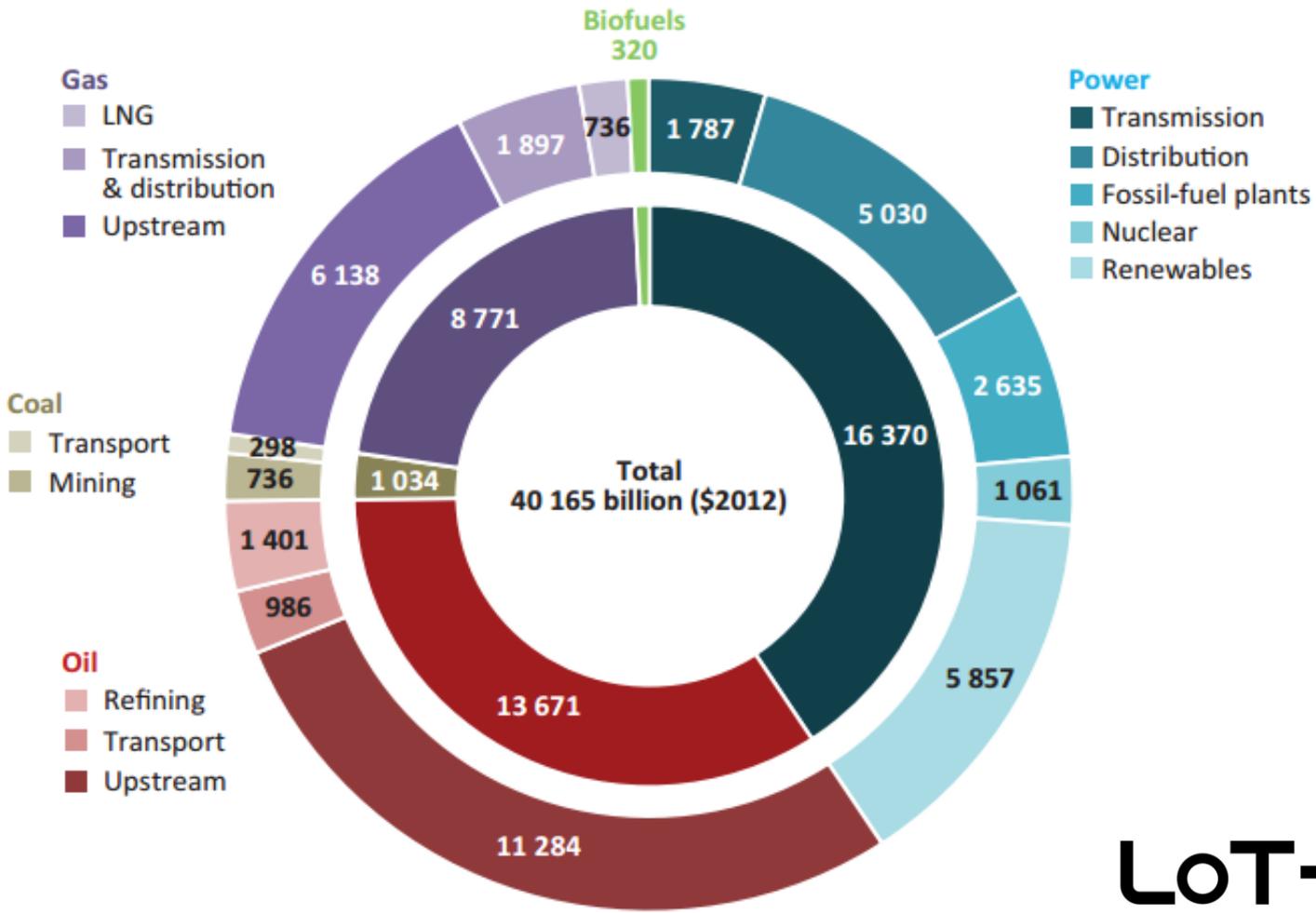
<b>Incremental</b>	.....	<b>Exponential</b>
<b>Supply focus</b>	.....	<b>Consumption &amp; storage focus</b>
<b>Large, centralised</b>	.....	<b>Distributed</b>
<b>Technologies</b>	.....	<b>Systems</b>
<b>Power</b>	.....	<b>Heating &amp; Cooling</b>
<b>Unhealthy</b>	.....	<b>Healthy</b>
<b>Rules</b>	.....	<b>Principles</b>
<b>Not very smart</b>	.....	<b>Much smarter</b>
<b>Markets</b>	.....	<b>Governments</b>

# 2017 Capital investment in the supply and use of energy

Global Capital Investment in the Supply & Use of Energy (\$1.8Tn in 2017)

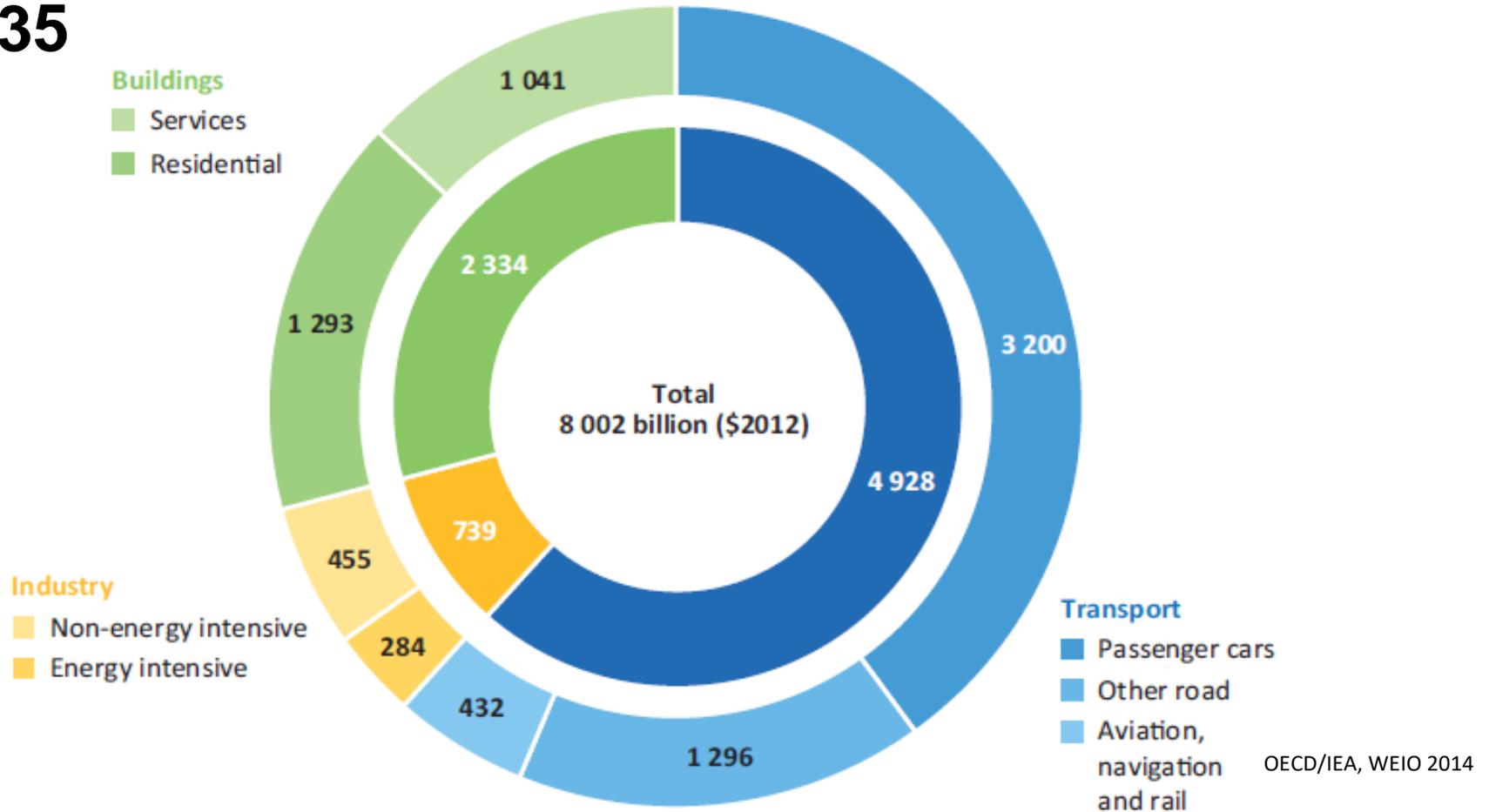


# Future global energy *supply* investment by sector in the IEA's New Policies Scenario, 2014-2035



OECD/IEA, WEIO 2014

# Future global energy *efficiency* investment by sector in the IEA's New Policies Scenario, 2014-2035

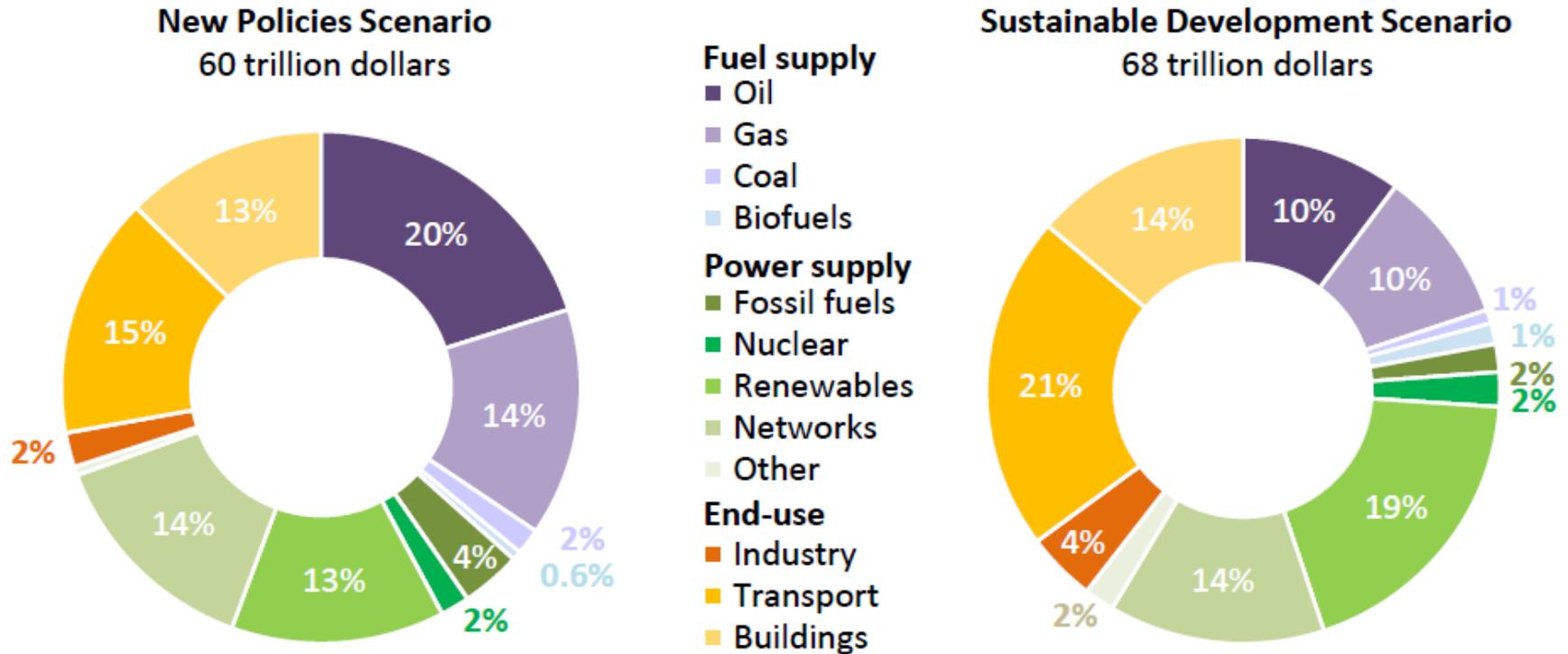


# Current and forecast views of future investment in the more efficient use of energy

- In the IEA's 2018 WEI....
  - Actual investment in efficient energy use was **13%** of total investment in 2017
- In the 2014 IEA WEO...
  - The proportion of investment in efficient use over 2014-2035 was forecast to be **17%**
- In the 2015 IEA WEO...
  - The proportion of investment in efficient use over 2015-2040 was forecast to be **32%**
- In the 2016 IEA WEO...
  - The proportion of investment in efficient use over 2016-2040 was forecast to be **35%**
- In the 2017 IEA WEO...
  - The proportion of investment in efficient use over 2017-2040 is forecast to be **31%**
- In the 2018 IEA WEO...
  - The proportion of investment in efficient use over 2018-2040 is forecast to be **30%**



# And 1.5°C needs investment in efficient use to rise from 30-39%



*Total investment in the Sustainable Development Scenario is only about 15% higher than in the New Policies Scenario, but there is a marked difference in capital allocation*

Note: Other includes battery storage and carbon capture, utilisation and storage.

# LoT-NET can also answer if low temp networks achieve more as systems than we currently forecast

Incremental	.....	Exponential
Supply focus	.....	Consumption & storage focus
Large, centralised	.....	Distributed
Technologies	.....	Systems
Power	.....	Heating & Cooling
Unhealthy	.....	Healthy
Rules	.....	Principles
Not very smart	.....	Much smarter
Markets	.....	Governments

Consumption & storage focus  
Distributed  
Systems  
Heating & Cooling

**LoT-NET**