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PRESENTATION FOR NOTRE EUROPE CONFERENCE

ENERGY UNION ONE YEAR ON:

PANEL ON INNOVATION: FOSTERING A PROFITABLE AND  
SOCIAL ENERGY TRANSITION

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# CONTEXT AND KEY QUESTIONS



How best to enable Europe to win the new industrial economic ‘race to the top’?

What approach best links energy to other industry and innovation policies?







Is it now time for a modern European industrial strategy focused on innovation?

# A PARADIGM SHIFT... IN THE ENERGY INDUSTRY



FROM

TO

	<b>MARKET PLAYERS</b>	<ul style="list-style-type: none"> <li>▪ Dominant energy Utilities</li> <li>▪ Streamlined value chain</li> </ul>	<ul style="list-style-type: none"> <li>▪ Enlarged energy ecosystems including start-ups, tech companies, cities,...</li> <li>▪ Disrupted value chain</li> </ul>
	<b>ENERGY USERS</b>	<ul style="list-style-type: none"> <li>▪ Consumers (passive)</li> <li>▪ Individual</li> <li>▪ Standardisation</li> </ul>	<ul style="list-style-type: none"> <li>▪ Prosumers (active)</li> <li>▪ Collective / Communities</li> <li>▪ Customisation</li> </ul>
	<b>SOLUTIONS</b>	<ul style="list-style-type: none"> <li>▪ Commodities (kWh, m<sup>3</sup>, PV panels,...)</li> <li>▪ Siloted offerings</li> <li>▪ Limited customer interactions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Services (smart home, energy efficiency,...)</li> <li>▪ Integrated multi-service offerings</li> <li>▪ Customer-centric business models</li> </ul>
	<b>GOVERNANCE</b>	<ul style="list-style-type: none"> <li>▪ Centralized</li> <li>▪ Limited energy democracy</li> </ul>	<ul style="list-style-type: none"> <li>▪ Increased decentralization of decision making</li> <li>▪ Development of a participative democracy</li> </ul>
	<b>ENERGY SYSTEMS MANAGEMENT</b>	<ul style="list-style-type: none"> <li>▪ Centralized energy system (large-scale power plants)</li> <li>▪ Over-the-year energy management</li> <li>▪ Estimated grid behaviors</li> <li>▪ Mono-fluid approach</li> </ul>	<ul style="list-style-type: none"> <li>▪ Decentralized energy system (distributed renewable sources)</li> <li>▪ Near real-time power flows management</li> <li>▪ Observed grid behaviors</li> <li>▪ Integrated Multi-fluid strategy</li> </ul>
	<b>BUSINESS MODELS</b>	<ul style="list-style-type: none"> <li>▪ Producers: OPEX-focused costs</li> <li>▪ Retailers: CAPEX-based costs</li> </ul>	<ul style="list-style-type: none"> <li>▪ Producers: CAPEX-focused costs</li> <li>▪ Retailers: OPEX-based costs</li> </ul>

# A PARADIGM SHIFT... IN INDUSTRIAL ECONOMICS



**From**

**To**

## **'Industrial'**

- Heavy manufacturing
- Sector-focused

- Value-add from products and services at scale
- Industrial ecosystems (value chains and clusters)

## **'Innovation'**

- Focused on technology
- Market-driven

- Mix of technology, industrial process, business model and mind-sets
- Societal challenge-led, market enabled

## **'Competitiveness'**

- Cost factors dominate
- Short-term at odds with decarbonisation

- Innovative capability most important
- Impossible without integration with decarbonisation strategy

# A NEW APPROACH TO (ENERGY) INDUSTRIAL POLICY



**From**

**To**

## Priorities of (energy) industrial policy

- |  |  |
|--|--|
| <ul style="list-style-type: none"><li>■ Resist change, preserve past successes and pick winners</li></ul>                        | <ul style="list-style-type: none"><li>■ Embrace transition and disruption, allow failures without picking winners</li></ul>  |
| <ul style="list-style-type: none"><li>■ Reverse de-industrialization regardless of specific new comparative advantages</li></ul> | <ul style="list-style-type: none"><li>■ Focus on European industrial strengths and value-add in the new global economy</li></ul>   |
| <ul style="list-style-type: none"><li>■ Focus support on narrowly defined or declining industrial activities</li></ul>           | <ul style="list-style-type: none"><li>■ Foster integrated industrial role in key global value chains and local clusters focused on end-user and consumer needs</li></ul> |
| <ul style="list-style-type: none"><li>■ Use industrial policy to meet wide range of socio-economic objectives</li></ul>          | <ul style="list-style-type: none"><li>■ Focus on deep innovation and use 'flanking' policy measures (e.g. fiscal or social) to manage transition challenges</li></ul>    |

# 5 LEVERS TO ENABLE EUROPE TO BE SECURE COMPETITIVE ADVANTAGE IN THE LOW-CARBON INDUSTRIAL ENERGY INNOVATION RACE



Levers	Hypotheses	Main enablers	Illustrations
1 <b>MARKET PULL</b>	<b>CHALLENGE-DRIVEN POLICIES &amp; INSTRUMENTS TO STIMULATE INNOVATION REGARDLESS OF TECHNOLOGIES</b>	<ul style="list-style-type: none"> <li>Prospective vision &amp; macro priorities</li> <li>Market pull instruments                             <ul style="list-style-type: none"> <li>Strong CO2 price signal</li> <li>Public tenders rather than subsidies (FITs...)</li> <li>Standards</li> <li>Support large-scale pilots (eg. Funding of smart cities challenges)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Solar</li> <li>Norms on vehicles</li> <li>Smart Cities</li> </ul>
2 <b>POLICY MIX</b>	<b>MARKET AND INVESTOR INTERESTS NEED CLARITY FROM CONSISTENT AND EFFECTIVE POLICY MIX</b>	<ul style="list-style-type: none"> <li>Set of policy levers for each stage of the innovation cycle (up- and downstream)</li> <li>Consistency between policies</li> <li>Regulation as a driver, over-regulation as a barrier</li> <li>Improved market rules to value promising innovation (power storage, open data...)</li> </ul>	<ul style="list-style-type: none"> <li>Budget allocation by DG</li> <li>Network operators</li> <li>Energy Storage</li> </ul>
3 <b>INNOVATION PORTFOLIO MANAGEMENT</b>	<b>MILESTONE-BASED MECHANISMS ARE NECESSARY FOR PORTFOLIO MANAGEMENT</b>	<ul style="list-style-type: none"> <li>Prioritization method for funding allocation</li> <li>Milestones-based funding</li> <li>Encourage IP protection (patterns) ?</li> </ul>	<ul style="list-style-type: none"> <li>ARPA-E</li> <li>EU Ocean energy gate funding</li> </ul>
4 <b>ECOSYSTEM STIMULATION</b>	<b>SYSTEMIC CHANGE NEEDS CROSS-BORDER AND CROSS-SECTOR COLLABORATION</b>	<ul style="list-style-type: none"> <li>Clustering around each European countries strengths</li> <li>Knowledge &amp; resources sharing</li> <li>Alliances with other geographies</li> </ul>	<ul style="list-style-type: none"> <li>Finland / China partnership</li> <li>Mars Discovery District</li> <li>Learning labs</li> </ul>
5 <b>METRICS</b>	<b>NEW METRICS NEEDED TO ASSESS RISK, PRIORITIZE FUNDING, TRACK PERFORMANCE &amp; COMMUNICATE</b>	<ul style="list-style-type: none"> <li>Priority Metrics as guidance to decision making                             <ul style="list-style-type: none"> <li>Eg. Social impacts (jobs), economic impacts (GDP, exports), climate target...</li> </ul> </li> <li>Allocation of funding based on a “tech-to-market” approach</li> </ul>	<ul style="list-style-type: none"> <li>H2020: funding allocation by area</li> <li>Methods used by private corporation to take decisions</li> </ul>