



ETIP SNET

EUROPEAN SMART
TECHNOLOGY AND NETWORKS FOR
INNOVATION AND ENERGY
PLATFORM TRANSITION

**PLAN.
INNOVATE.
ENGAGE.**

ENTSO-E view Objectives

20 June 2019

Norela Constantinescu



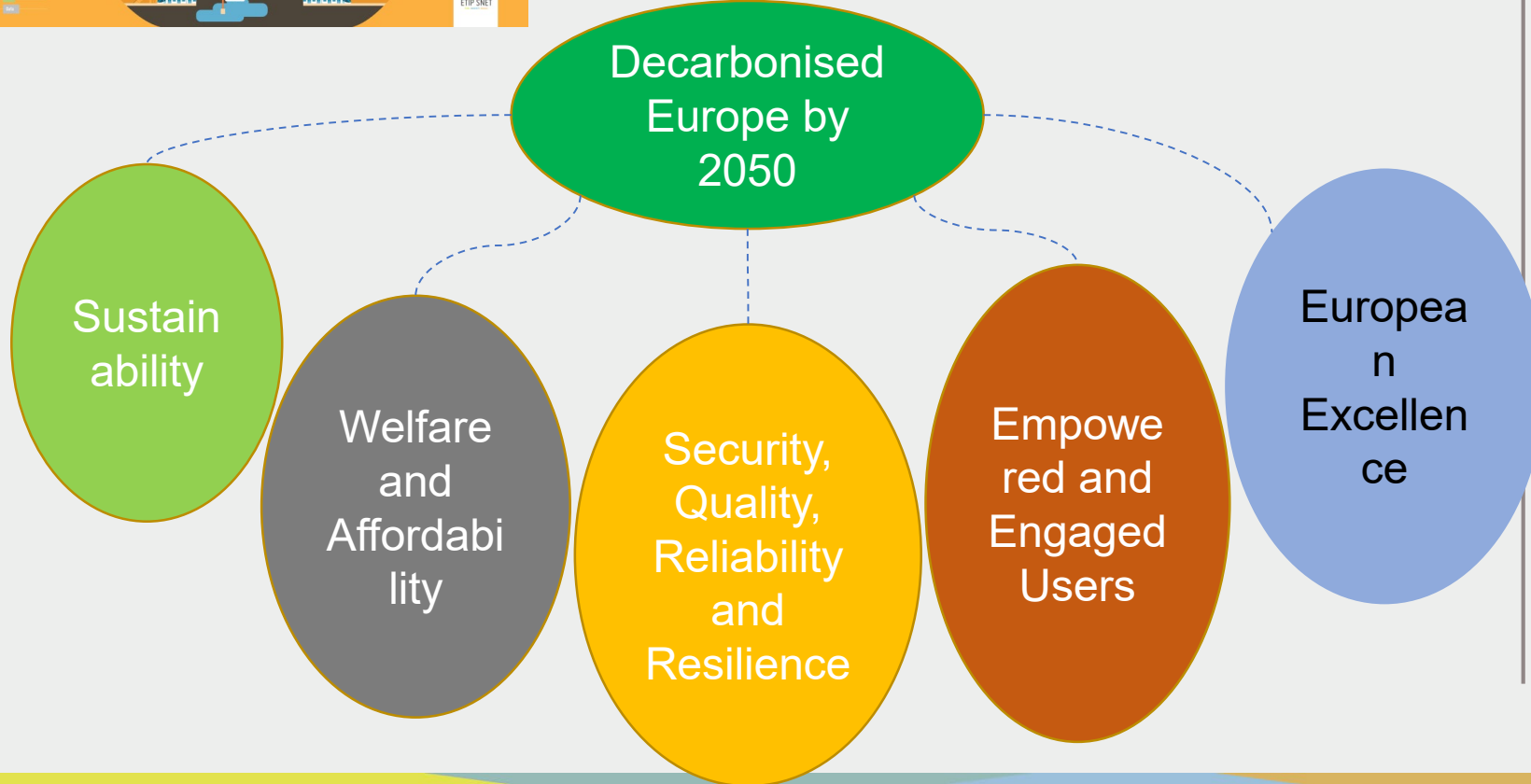
ETIP SNET

PLAN.
INNOVATE.
ENGAGE.

R&I Roadmap: vision, objectives, actions: **Simple**, **Visible**



ETIP SNET
vision 2050



Vision: 2050

➤ R&I Roadmap

- ❖ For whom?
- ❖ What and how

R&I Roadmap:

- Objectives + IO (23)
- Timeline 2020 – 2030

Others: IE (25), IR (6), PT (3)

Actions (17)

- Towards the objectives
- Priorities
- Milestones



ETIP SNET PLAN. INNOVATE. ENGAGE.

Top - Down

ETIP SNET
Vision 2050
objectives

Decarbonization

Reliability

Affordability

Policy objectives
(integrated)

ENERGY, MOBILITY, CLIMATE/ENVIRONMENT (CEP, Horizon Europe, Sustainable Transport)

Framework

One energy system view –integration

Objectives

Objectives of the energy system

Sustainability

Social Welfare and
affordability

Security quality,
reliability and
resilience

Engaged users?

European excellence

R&I
priorities

What and how

Flexibility, Citizens, Platforms, services

Actors/Roles,
Service,
Enablers
Actions

Storage, sector
coupling (H/C,
Gas...), transport

Grids : MV,
HV, LV

Digitalization

Generation

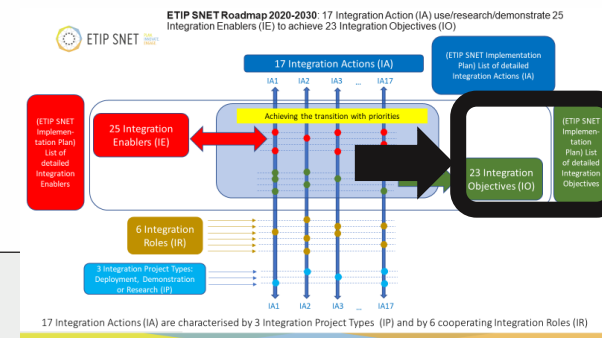
Society and
environment

Regulation

Bottom- up



Proposed “23 Integration Objectives” (mapped from previous ETIP SNET RM)



Sustainability and circularity	Higher Welfare & better Affordability					Higher User Empowerment and Engagement			EU Excellence
IO1	IO2	IO3	IO4	IO5	IO6	IO20	IO21	IO22	IO23
Zero CO2 emissions; constant (low) CO2 in atmosphere, low GHG	Minimum asset maintenance costs, maximum lifetime (mainly regulated monopoly assets)	Minimum investment costs for overall grid-based energy systems (minimum cost system infrastructure designs)	Welfare-maximising pan-European Wholesale-Electricity and Gas market-based products and services (businesses)	Welfare maximising local and neighborhood / retail-market-based electricity, gas and heat/cooling products and services (businesses)	Actor roles, interrelationships, inputs, outputs, time and location dependencies, success factors	OT Sensoring (on all that comes in masses)	Standardized data exchange	Big data analysed (on all that comes in masses)	(Mass) Learning, Replication, Scaling up (deployment, masses)

Higher Security, Quality, Reliability, Resilience												
IO7	IO8	IO9	IO10	IO11	IO12	IO13	IO14	IO15	IO16	IO17	IO18	IO19
Flexibility-enabled new materials and new technologies	System operation optimising/supporting Expert Systems and tools (is too generic!)	Cybersecure equipment and systems	DC and hybrid AC/DC grid elements	Flexible large non-distributed thermal power generator based services (on all time scales)	Accurate RES forecast and response (on all time scales)	Accurate Demand (Electricity, Gas, Heat/Cooling) forecast and response (on all time scales)	Storage-based services (on all time scales)	Demand-based services (on all time scales)	RES-based services (on all time scales; including ancillary services)	Real-time restoration services after blackouts	Real-time coordinated, controlled flexibility enablers (in all energy carriers)	Real-time monitored/observed Electricity System State



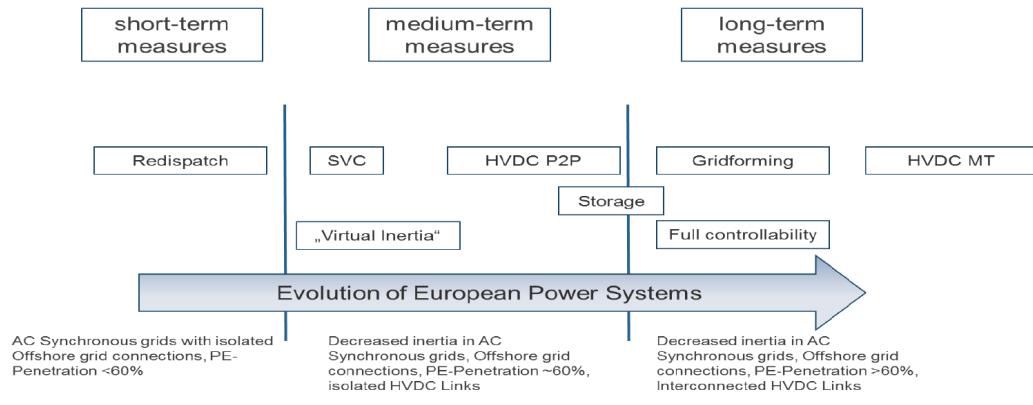
DC and Hybrid AC/DC : focus ,visibility, milestones



North Sea Hub -2030 ?

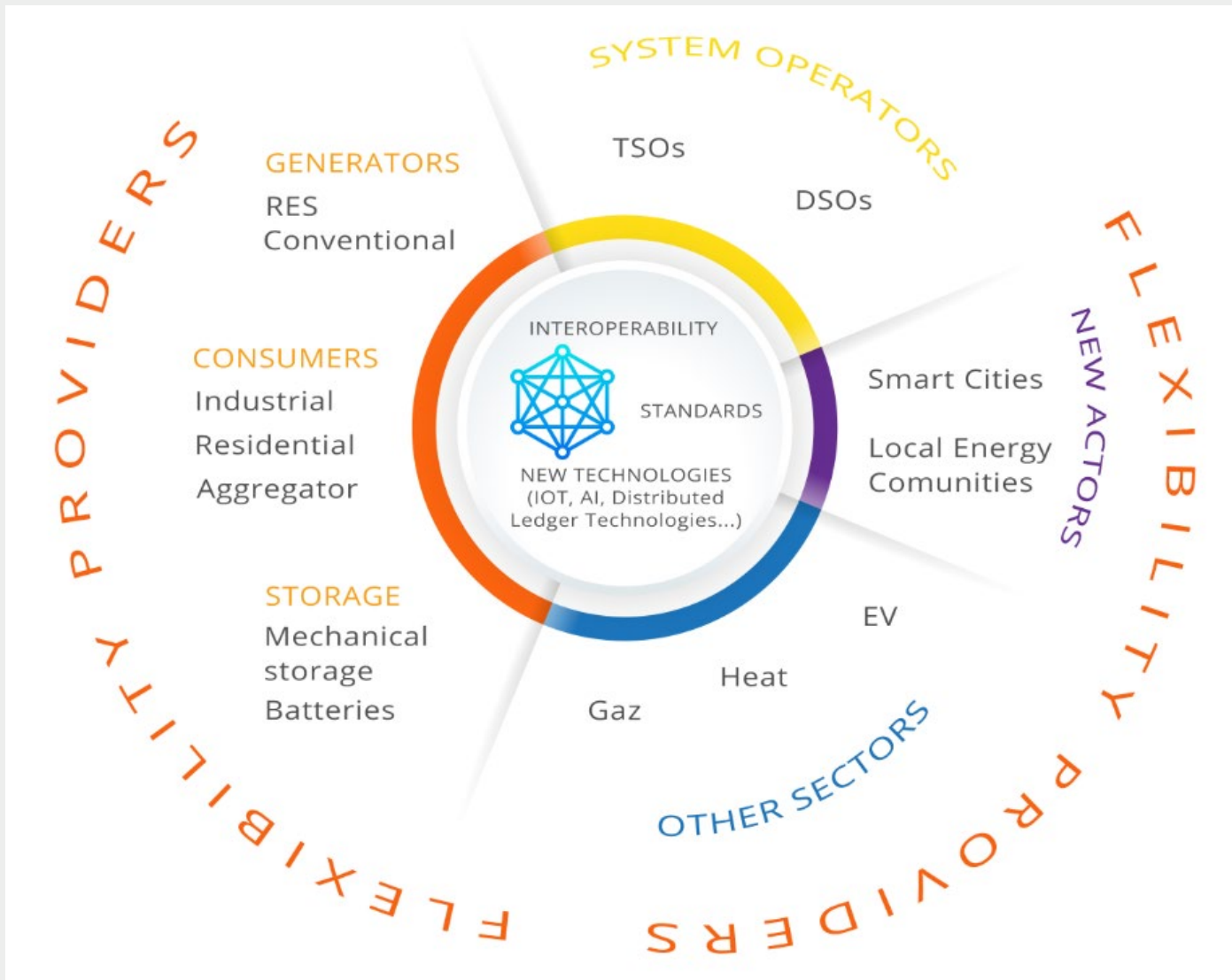
Where we should focus?
Which is the timeline?

Evolution of the Power System – Technology Trends



Milestones ,quantification?

Power platforms – the digital connection between actors of the energy system



2025 ? Or 230?

➔ Connect the dots and enhance flexibility services

➔ Enhance interconnection and interactivity between actors

NET PLAN.
INNOVATE.
ENGAGE.

PLAN.
INNOVATE.
ENGAGE.

Thank you