DSO Roadmap and Implementation Plan Update Webinar

Tuesday 20th April 2021

The voice of the networks

Thank you for joining this Webinar.

- This webinar will commence at 2:03pm.
- If you are unable to play the audio through your device, you can **dial in by calling +44 20 3855 5885 and using access code 267 943 977#**

- All microphones have been set to mute to avoid background noise.

- Please ask questions or make comments **via the chat function** throughout the meeting.

- Please note that the webinar will be recorded and the audio, chat messages (anonymised) and slides will be made publicly available on our website.

- If you would like to receive information about the Open Networks Project or have any feedback you would like to submit, please get in touch with us at opennetworks@energynetworks.org.

- Presenters: Steve Atkins (SSEN), Rafiek Versmissen (DNV), Angeliki Gkogka (DNV)

Agenda

	Topic	Duration	Presenter	Time
1	Welcome & Introduction to DSO Roadmap – background and context	7 mins	Steve Atkins (SSEN)	2:03pm-2:10pm
2	Interactive Presentation - run through of DSO Roadmap and Q&As	30 mins	Rafiek Versmissen (DNV)	2:10pm-2:40pm
3	Q & A Session	35 mins	Rafiek Versmissen (DNV), Steve Atkins (SSEN), Angeliki Gkogka (DNV)	2:40pm-3:15pm
4	Closing remarks	15 mins	Steve Atkins (SSEN)	3:15pm-3:30pm

The voice of the networks

Introduction to DSO Roadmap
Background and context

Steve Atkins (SSEN)

DSO Implementation Plan - Introduction

DSO Implementation Plan is a key project deliverable that sets out a clear pathway to the implementation of distribution system operation and will be a key input to RIIO2 business planning processes.

This provides a consolidated view of outcomes from ONP and industry to progress the transition and provides greater visibility of implementation progress.

This provides insights into actions implemented to date as well as anticipated windows for future implementation.

It serves as a tool to report progress and identify any barriers and gaps in delivering DSO functionality.

The plan represents a snapshot in time as at March 2021 with a plan for an update in Q4 2021.

Outputs

Interactive Roadmap

Report

Objectives for Today

This session is designed for us to listen to your views on our updates to the DSO Implementation Plan, and how we can improve it to make it more useful.

- How you are using the DSO Implementation Plan?
- How you want to use it in future
- What improvements you would like to see to make it more useful?

Our focus is on getting your feedback and input – so please drop any observations, use cases, or feedback **in the chat box** as we run through this presentation.

Recap of Open Networks' work on DSO
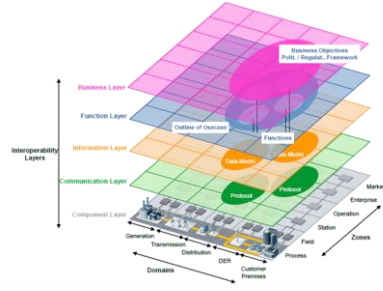
Next step identified for WS3 from consultation

"The Open Networks Project will continue its work on defining the least regrets steps to ensure enhanced coordination between the DSO and ESO. As this work is delivered, updates on next steps will be communicated with stakeholders."

DSO Implementation Plan (2020)

Monitor and provide visibility of actions required to deliver the least regrets pathway in the short, medium and long term.

DSO Definition & Functions (2017 & 2018)

Modelling Future Worlds (2018)

Independent Impact Assessment (2019)

- System Coordination
- Network Operation
- Investment Planning
- Connections & Connections Rights
- System Defence and Restoration
- Service/Market Facilitation
- Service Optimisation
- Charging

Developed Alongside Stakeholders

- Beginning in 2017, Open Networks has worked to define what Distribution System Operation is and the functions and activities that are associated.

- Our initial work focused on defining the best and most efficient routes to transition to DSO and undertaking Smart Grid Architecture Models (SGAM) for each of these 'future worlds'.

- Published in 2019 an independent impact assessment looked at the various options needed to make DSO a reality in Great Britain and compared the strengths and weaknesses of the different 'Future Worlds' against over 30 criteria, including decarbonisation and cost to the consumer.

- A full consultation and engagement programme were held for both the future worlds and future worlds impact assessment work. More information on the 2018 Future Worlds Consultation, and the 2019 Future Worlds Impact Assessment Consultation, can be found on our website.

Interactive Presentation
Run through of DSO Roadmap and Q&As

Rafiek Versmissen (DNV)

DSO Roadmap - Q1 2021 Update

Rafiek Versmissen, Director
Angeliki Gkogka, Senior Consultant

April 2021

The roadmap shows how the GB energy industry delivers distribution system operation

Function

Function	
1. System Coordination	
2. Network Operation	
3. Investment Planning	
4. Connections and Connection Rights	
5. System Defence and Restoration	
6. Services and Market Facilitation	
7. Service Optimisation	
8. Charging	

Jan 2020 — Jan 2022 — Jan 2024 — Jan 2026 — Jan 2028 — Jan 2030 — Jan 2032 — Jan 2034 — Jan 2036 — Jan 2038 — Jan 2040
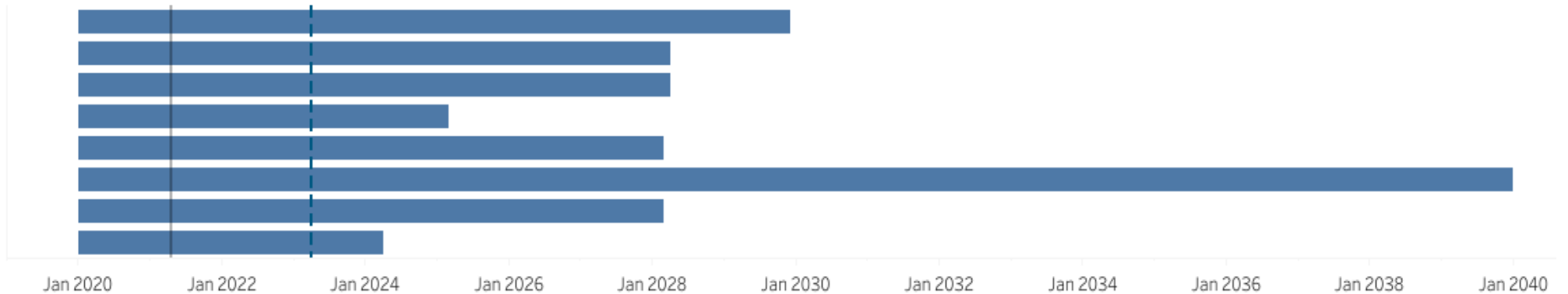
Objective:

To provide a consolidated view of actions that network companies will need to undertake to deliver and support implementation of Distribution System Operation (DSO) functionality.

Monitor progress and identify gaps to delivering DSO functionality.

Basis:

8 DSO Functions and underlying activities defined in ENA ONP Workstream 3

Aggregation of underlying steps, defined and developed with ENA ONP WS3 stakeholders

Output:

1) Interactive online roadmap

2) Detailed DSO Implementation Plan document

Functional Enhancements developed in Q1 2021

1) Data extraction function

2) Alternative for "Popup windows" in Tableau

3) Search function

DNV

A Data Extraction File (excel) will be provided alongside the online roadmap

Design:
- All data that is visible in the roadmap can be downloaded in an excel file
- The file has 3 sheets:
  1. Introduction, explanation of the field and units, disclaimer
  2. **Aggregated roadmap data** for all steps on the roadmap
  3. **Individual monitoring steps** of the participating organisations

Aggregated

Sequence	Field name
1	Function
2	Activity
3	Step nr
4	Step Name
5	Step Description
6	Step Type
7	Owner
8	Aggregation Type
9	ENA ONP Product
10	Duplicate step
11	Nr of Steps
12	Organisations
13	Number of organisations
14	Start date
15	End date
16	Not planned
17	Initiated
18	Implementing
19	Completed
20	Low complexity
21	Medium complexity
22	High complexity

Individual Monitoring

Sequence	Field name
1	Function
2	Activity
3	Step nr
4	Step name
5	ENA ONP Product
6	Organisation name
7	Progress
8	Start date
9	End date
10	Comment
11	Progress link

Descriptive Info underneath roadmap replaces Popups

An open Search Function has been added

- Additional search page

- Search functionality:
Open text search in step name and step description.

- Selecting a step provides additional information

- Additional selection through:
  – Restriction to specific functions
  – Selection of a specific organisation type

Q1 2021 Status Update – Overview of Changes

DNV

Summary of Q1 2021 updates on new steps

| Function	Key additions
Function 1: System Coordination	New steps from ENA ONP 2020 deliverables on T-D coordination, new steps from ENA ONP 2021 PID
Function 2: Network Operation	New steps from ENA ONP 2021 PID, e.g. on DER visibility and monitoring
Function 3: Investment Planning	New steps driven by ENA ONP 2020 deliverables and 2021 PID as well as Ofgem's developments (e.g. Network developments plants, Coordination adjustment mechanism)
Function 4: Connections and Connection rights	New steps from ENA ONP 2021 PID (e.g. Embedded Capacity Register) , Code Modifications or Ofgem's developments.
Function 5: System Defence and Restoration	No new steps were added
Function 6: Service and market facilitation	New steps driven by ENA ONP 2021 PID, mainly linked to WS1A deliverables and Ofgem's DSO licence conditions.
Function 7: Services optimisation	New steps driven by ENA ONP 2021 PID, mainly linked to WS1A deliverables and Ofgem's DSO licence conditions.
Function 8: Charging	No new steps were added

Function 1: System Coordination

Before:

Activity
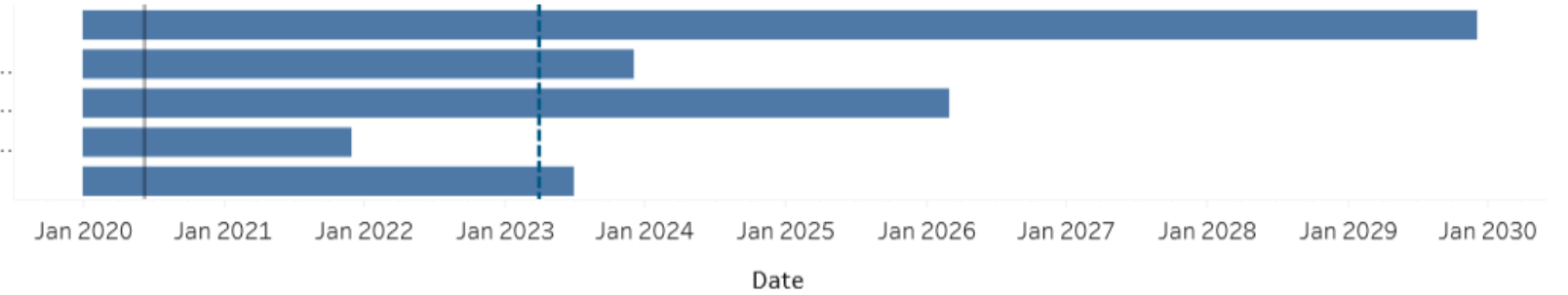
75 unique steps

177 contributions
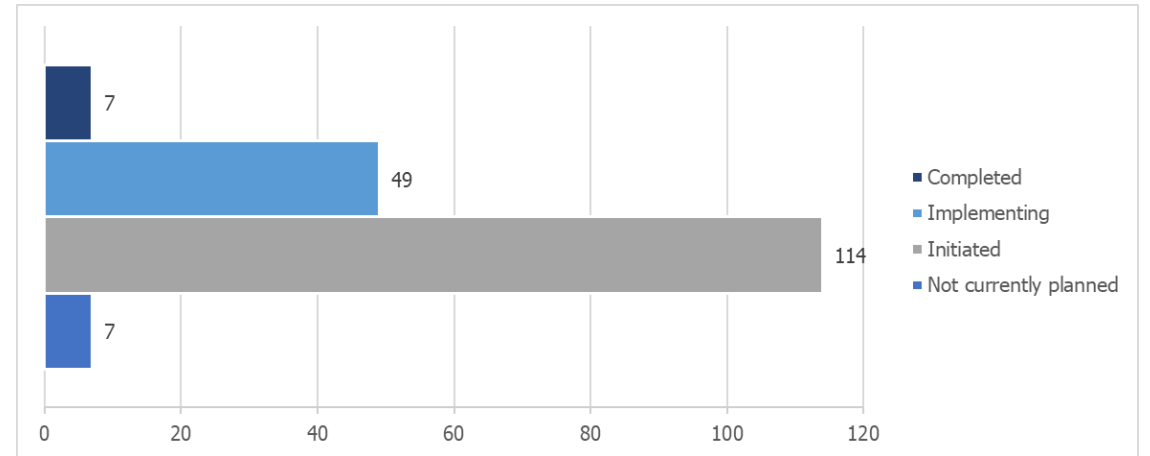
18

Function 1: System Coordination

After:
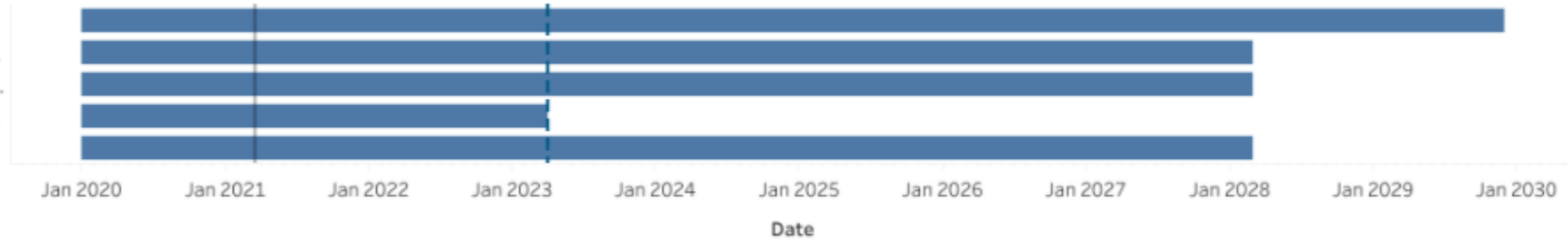
91 unique steps

243 contributions
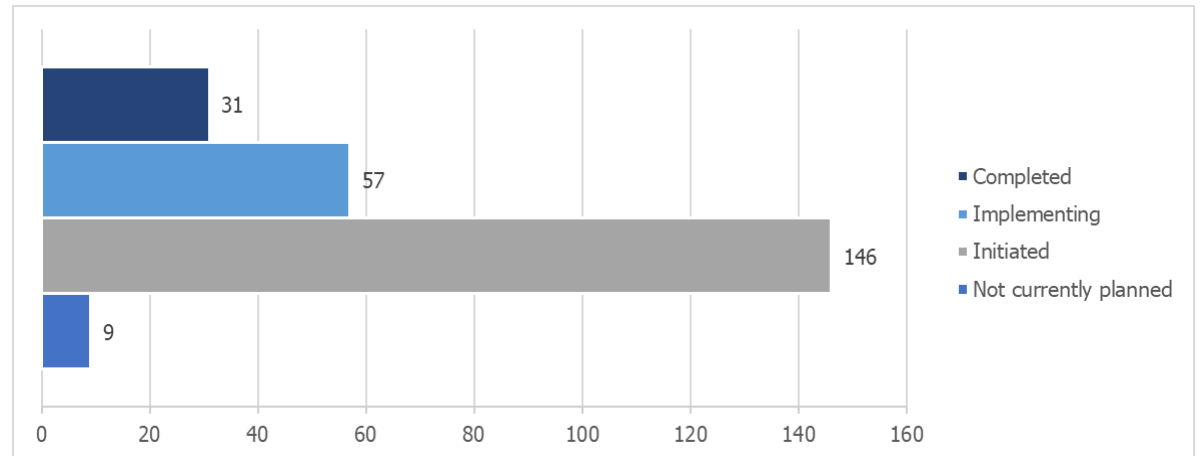
Function 2: Network Operation

Before:
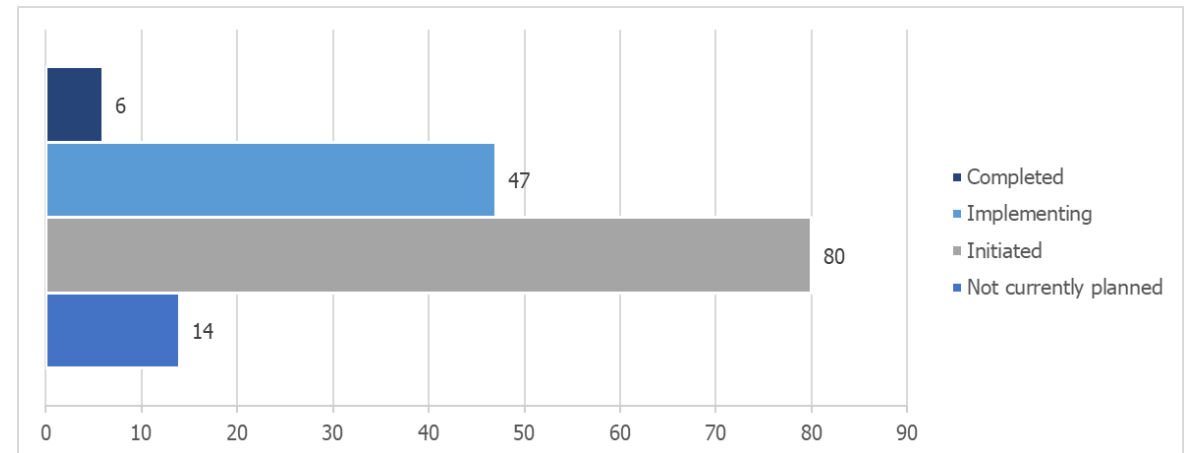
Activity

Activity	
A. Operate network within thermal ratings.	
B. Operate network within voltage limits.	
C. Operate network to maintain dynamic stability.	
D. Operate network within fault level limits	
E. Operate network to meet other power quality criteria.	
F. Operate network taking account of ongoing asset condition.	
G. Operate network to minimise losses.	
H. Enable network outages to provide access to assets and resour..	
I. Optimised use of assets and dispatch of services	
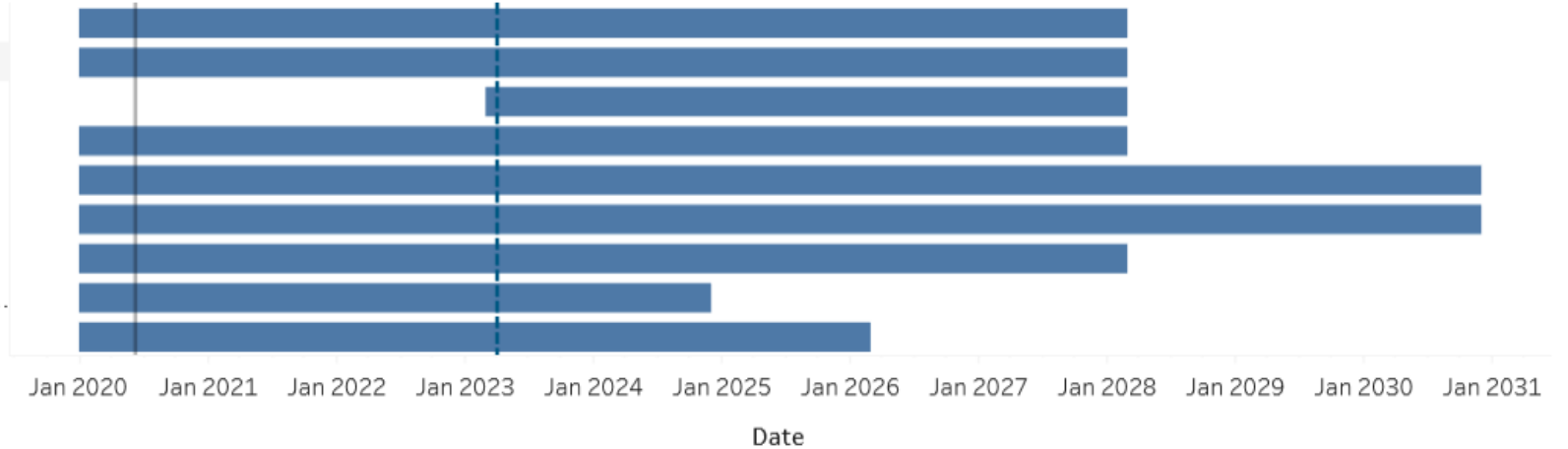
47 unique steps

147 contributions

|	
6	Completed
47	Implementing
80	Initiated
14	Not currently planned

20

Function 2: Network Operation

After:

Activity

A. Operate network within thermal ratings.
B. Operate network within voltage limits.
C. Operate network to maintain dynamic stability.
D. Operate network within fault level limits
E. Operate network to meet other power quality criteria.
F. Operate network taking account of ongoing asset condition.
G. Operate network to minimise losses.
H. Enable network outages to provide access to assets and resour..
I. Optimised use of assets and dispatch of services

Date
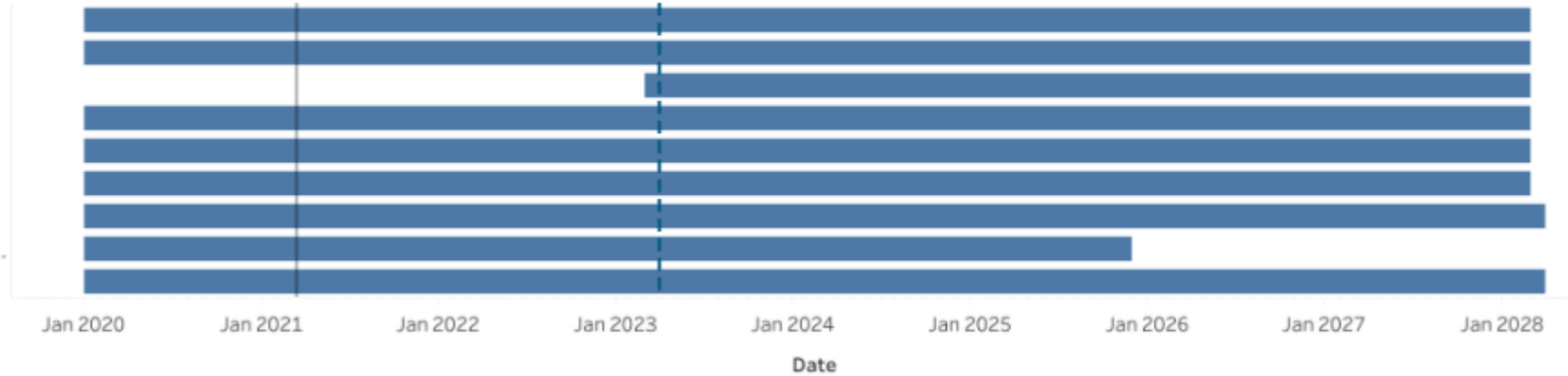
54 unique steps

165 contributions

- Completed
- Implementing
- Initiated
- Not currently planned

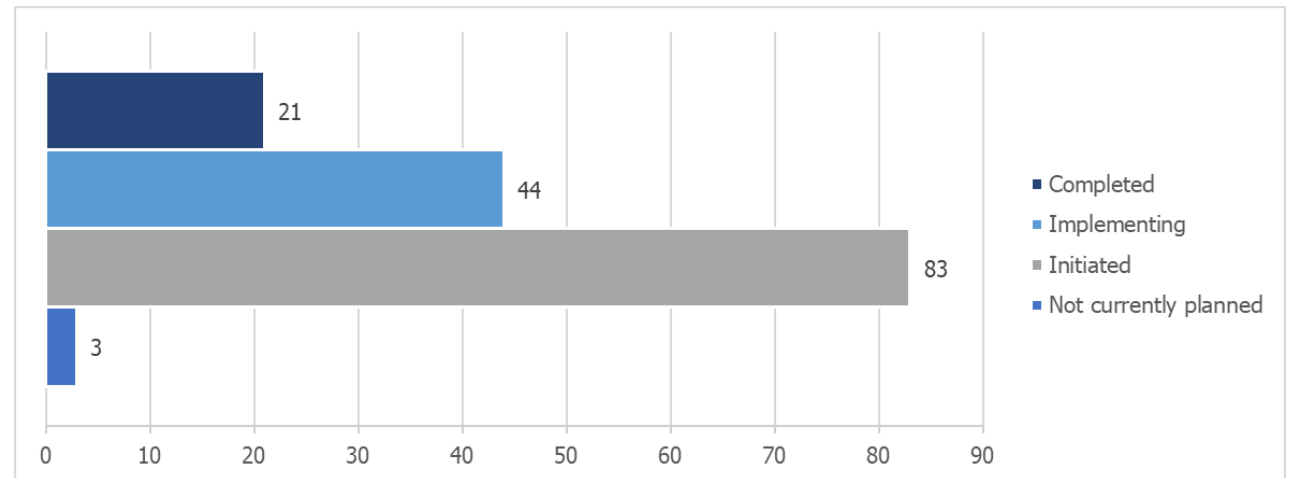8
60
86
11

21
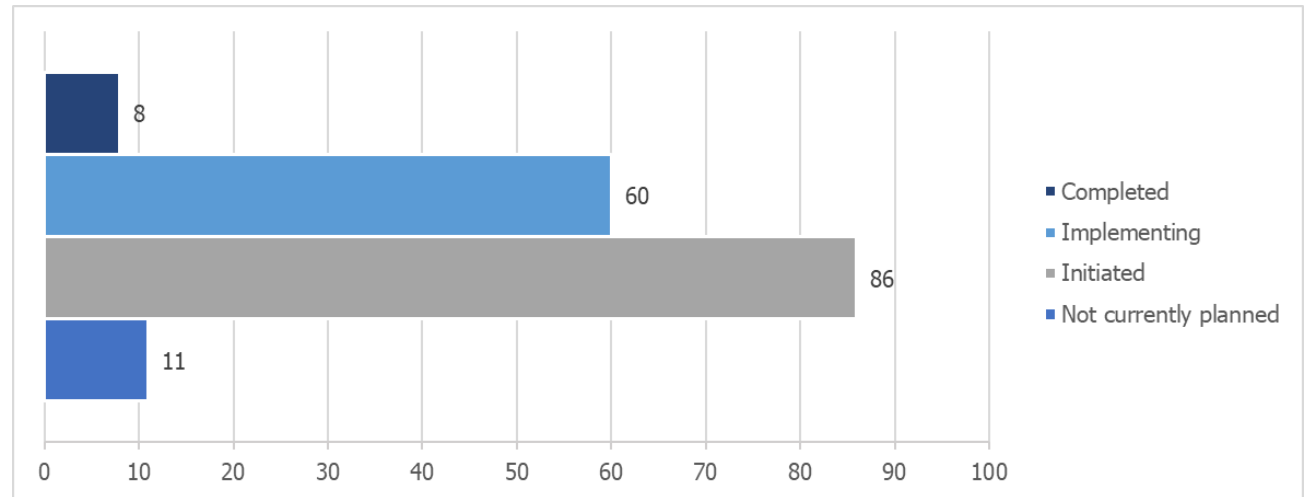
Function 3: Investment Planning

Before:

Activity
A. Traditional investment planning
B. Whole system planning
C. Non-traditional investment planning
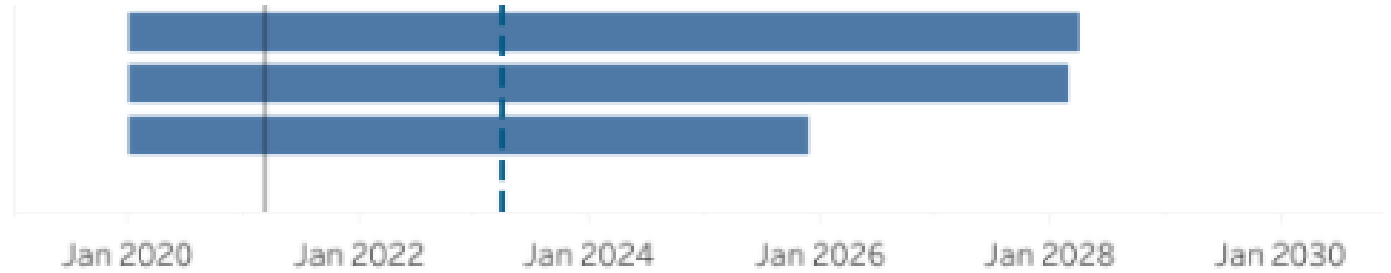D. Security of supply (D&G)
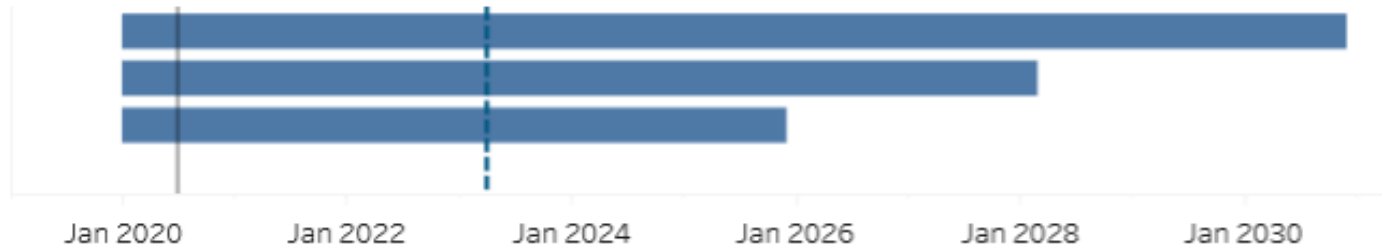
45 unique steps
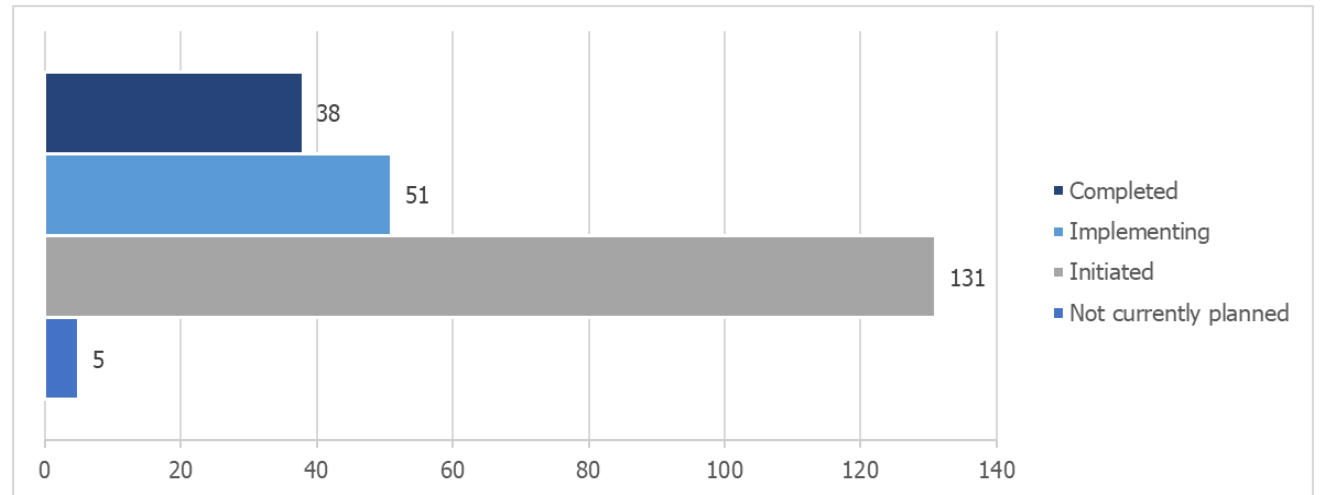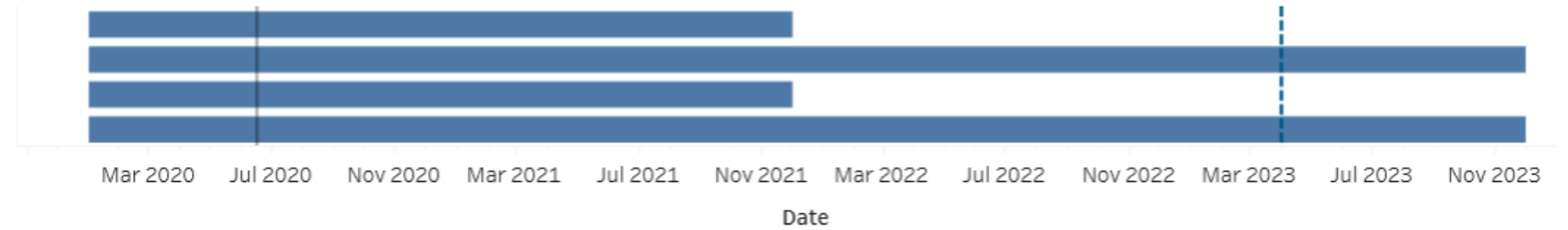
151 contributions

Function 3: Investment Planning

After:

Activity

A. Traditional investment planning
B. Whole system planning
C. Non-traditional investment planning
D. Security of supply (D&G)

64 unique steps

225 contributions

Function 4: Connections and Connection Rights
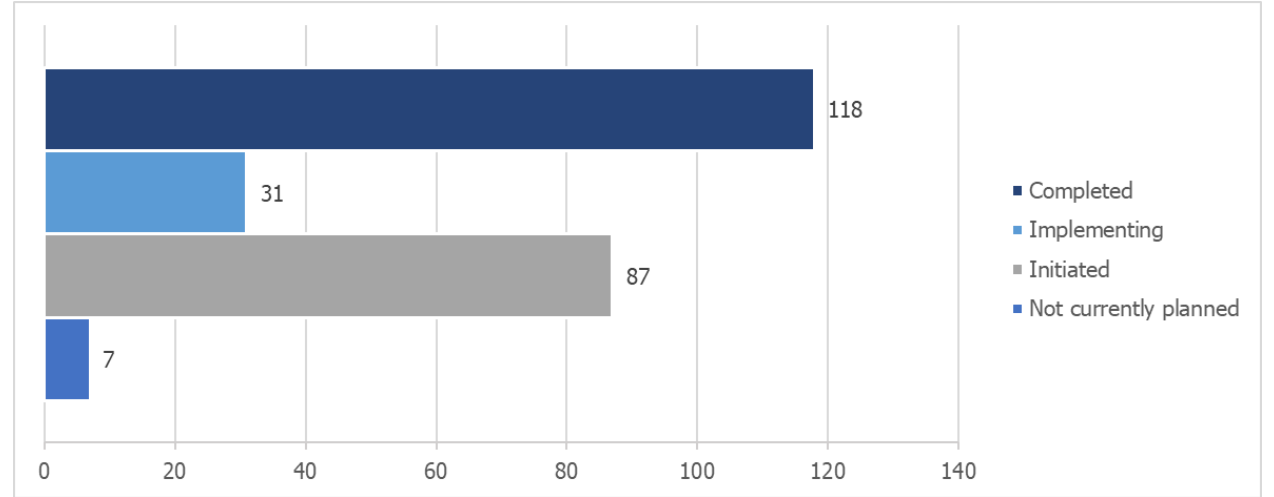
Before:

50 unique steps

243 contributions

Function 4: Connections and Connection Rights

After:
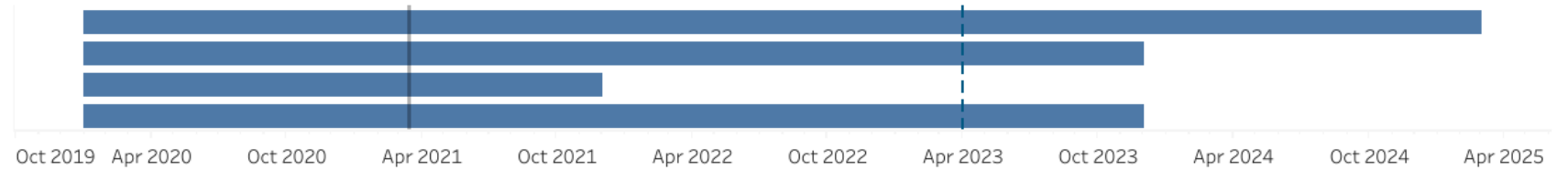
72 unique steps

300 contributions
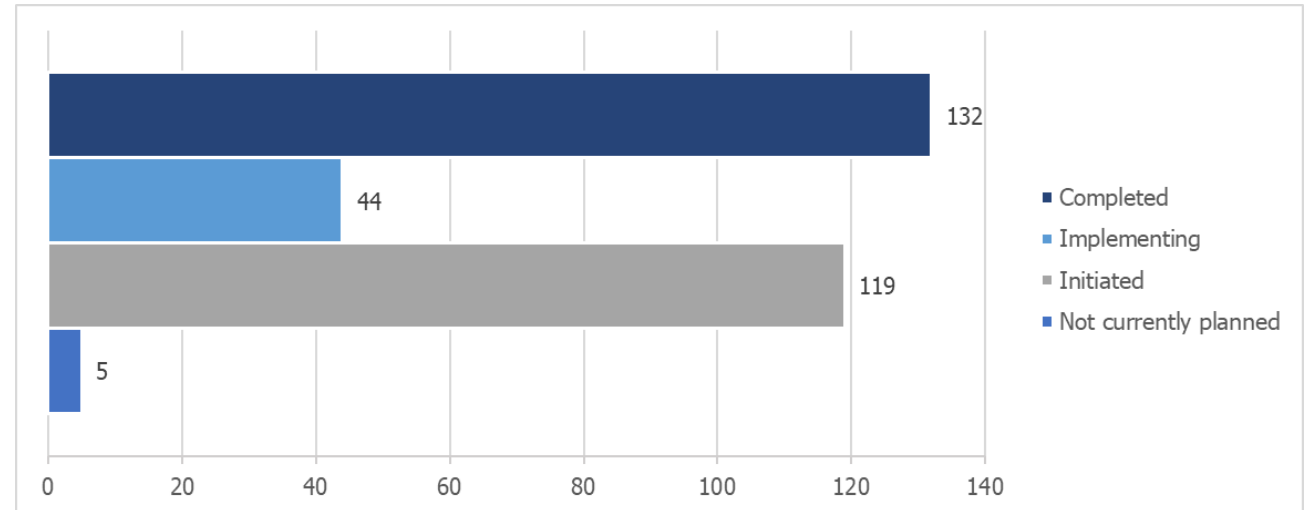
Function 5: System Defence and Restoration

Before:
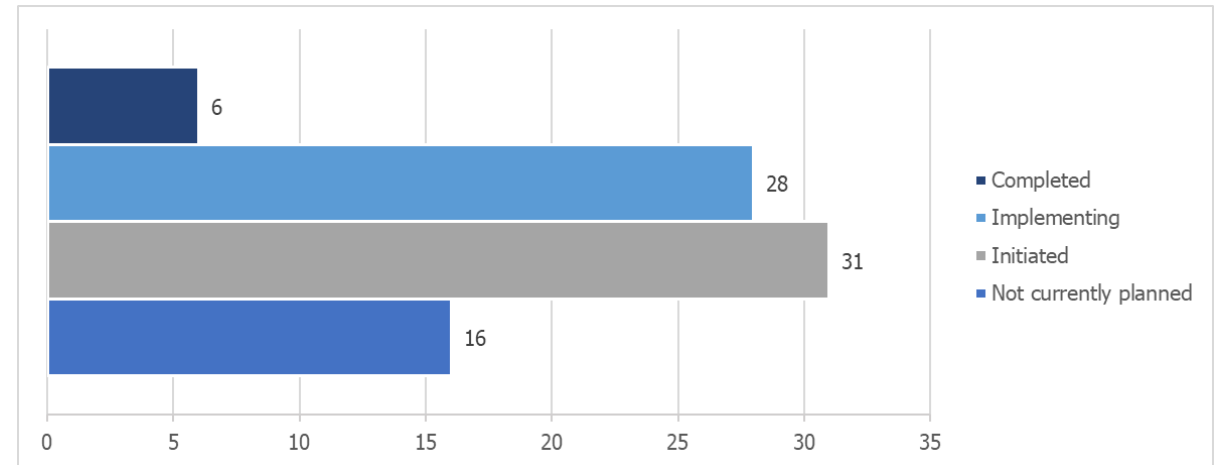
Activity

A. Loss of Mains & other Protection Arrangements	
B. Network Contingency Planning for High Impact Low Probability..	
C. Resilience (Voltage Reduction, LFDD, HFGD)	
D. Resilience (Islanding)	
E. Black Start	

Apr 2020 Oct 2020 Apr 2021 Oct 2021 Apr 2022 Oct 2022 Apr 2023 Oct 2023 Apr 2024 Oct 2024 Apr 2025 Oct 2025 Apr 2026

Date

20 unique steps

81 contributions

- Completed: 6
- Implementing: 28
- Initiated: 31
- Not currently planned: 16

Function 5: System Defence and Restoration

After:
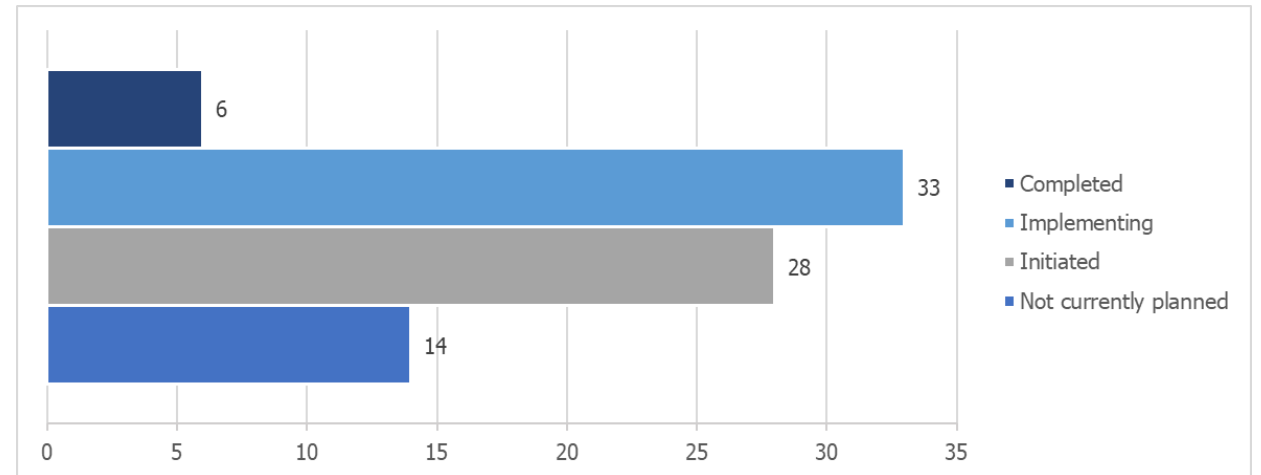
Activity

Activity	
A. Loss of Mains & other Protection Arrangements	
B. Network Contingency Planning for High Impact Low Probability..	
C. Resilience (Voltage Reduction, LFDD, HFGD)	
D. Resilience (Islanding)	
E. Black Start	

Jun 2020   Dec 2020   Jun 2021   Dec 2021   Jun 2022   Dec 2022   Jun 2023   Dec 2023   Jun 2024   Dec 2024   Jun 2025   Dec 2025   Jun 2026

Date

20 unique steps

81 contributions

- Completed: 6
- Implementing: 33
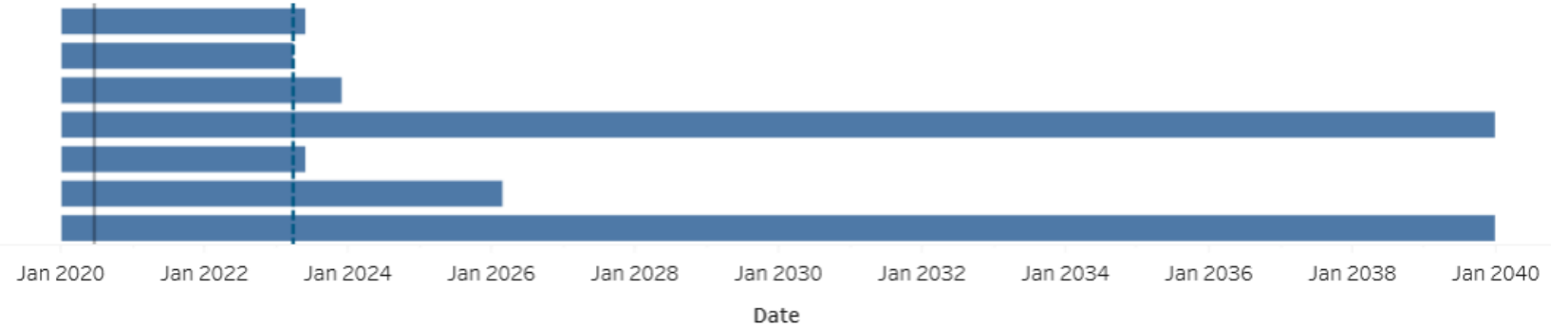- Initiated: 28
- Not currently planned: 14

27

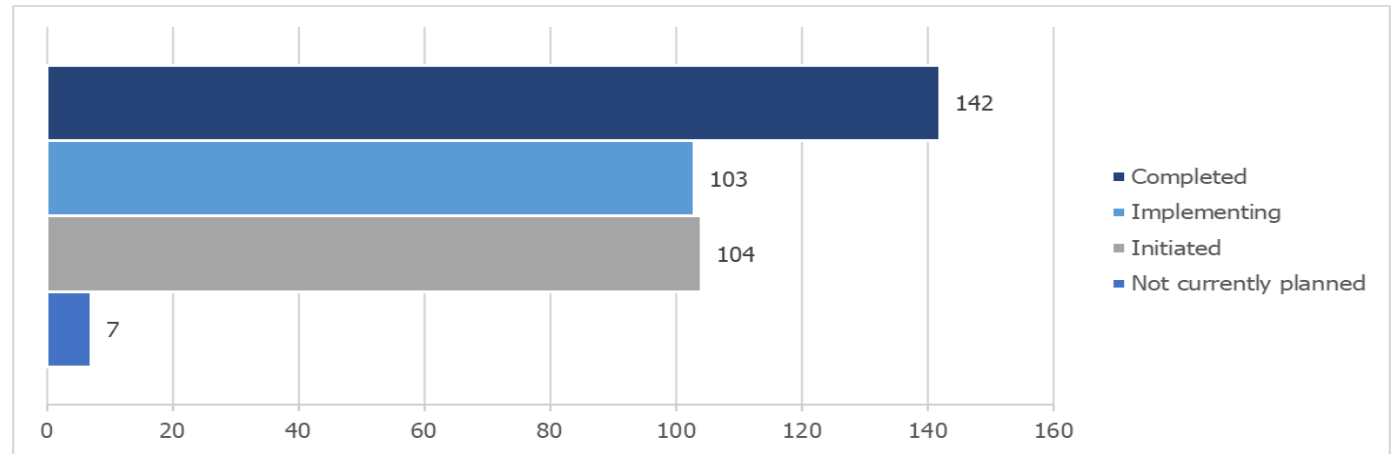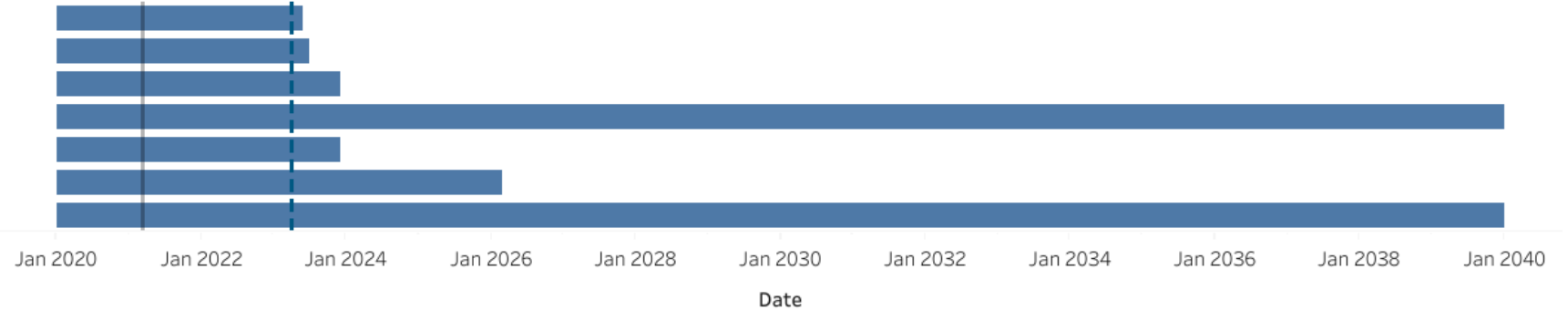# Function 6: Services and Market Facilitation

Before:

Activity

A. Define distribution network service requirements including sco..
B. Assess value and facilitate services to utilise flexibility sources ..
C. Facilitate the operation of Distributed Energy Resource Manag..
D. Interaction with aggregators and other non-traditional actors.
E. Support the implementation of nontraditional market models f..
F. Service conflict mitigation/resolution.
G. T-D co-ordination for transparent and consistent whole system ..

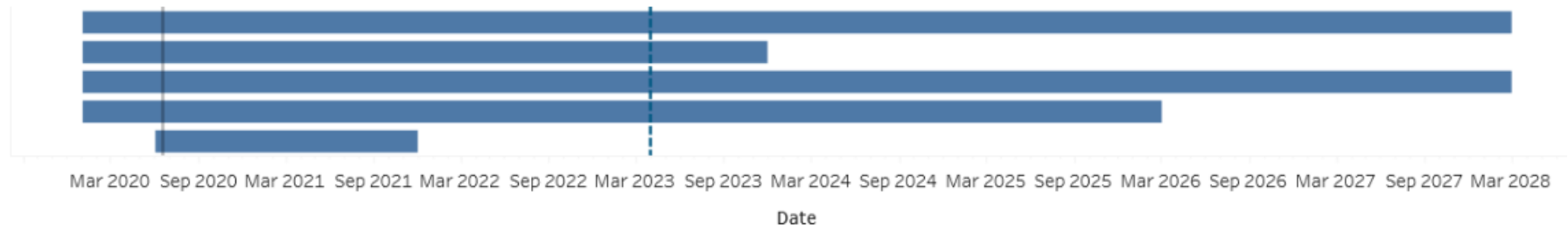Jan 2020   Jan 2022   Jan 2024   Jan 2026   Jan 2028   Jan 2030   Jan 2032   Jan 2034   Jan 2036   Jan 2038   Jan 2040

Date

90 unique steps

356 contributions

142 Completed
103 Implementing
104 Initiated
7 Not currently planned

0   20   40   60   80   100   120   140   160

28

Function 6: Services and Market Facilitation

After:

Activity

A. Define distribution network service requirements including sco..
B. Assess value and facilitate services to utilise flexibility sources ..
C. Facilitate the operation of Distributed Energy Resource Manag..
D. Interaction with aggregators and other non-traditional actors.
E. Support the implementation of nontraditional market models f..
F. Service conflict mitigation/resolution.
G. T-D co-ordination for transparent and consistent whole system ..

150 unique steps

546 contributions

- Completed — 187
- Implementing — 124
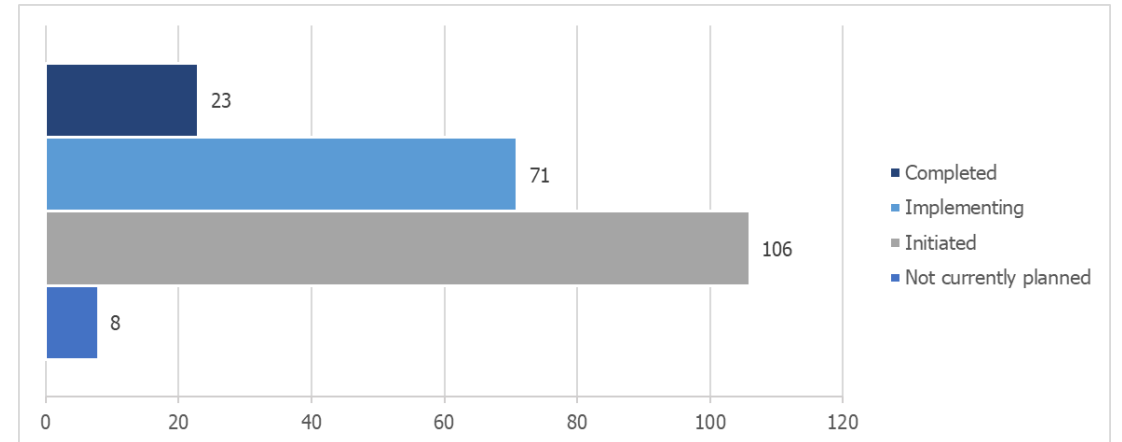- Initiated — 226
- Not currently planned — 9

29
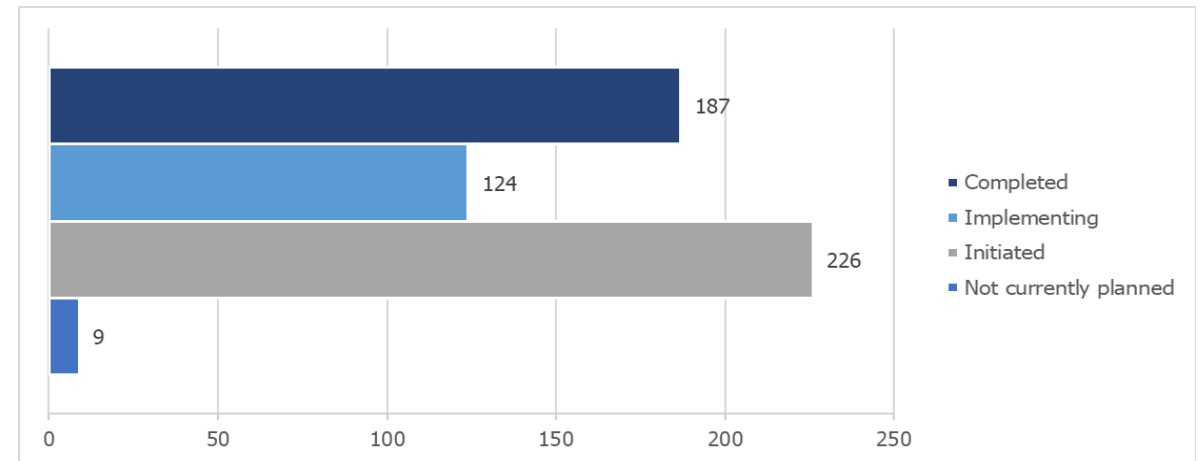
Function 7: Service Optimisation

Before:

52 unique steps

208 contributions

Function 7: Service Optimisation

After:

Activity

Activity	
A. Smartgrid network flexibility	
B. Service access management	
C. Service selection	
D. T-D co-ordination	
E. Conditions/process of market failure	

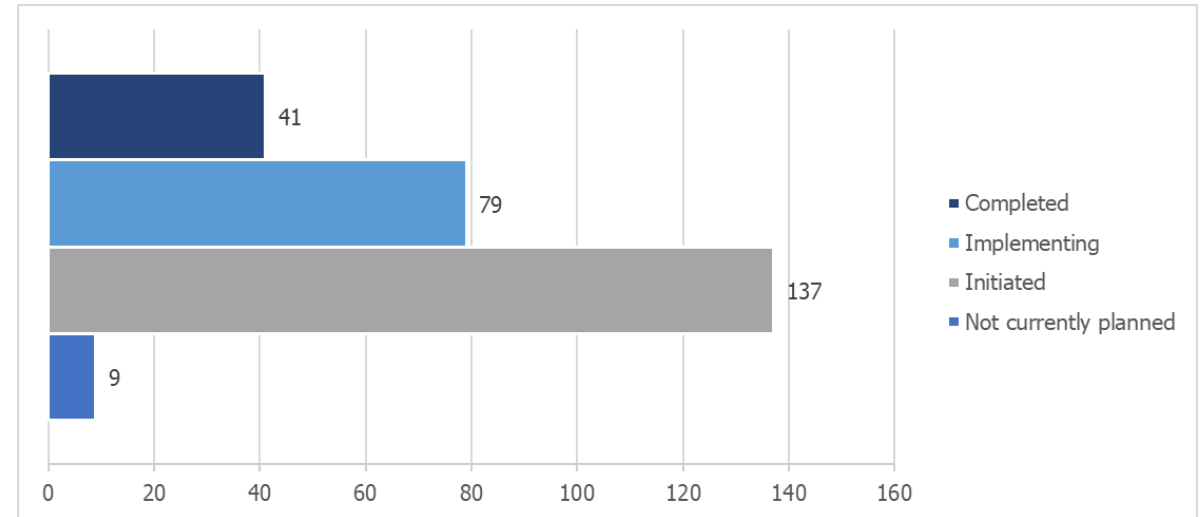Jan 2020 — Jan 2021 — Jan 2022 — Jan 2023 — Jan 2024 — Jan 2025 — Jan 2026 — Jan 2027 — Jan 2028

Date
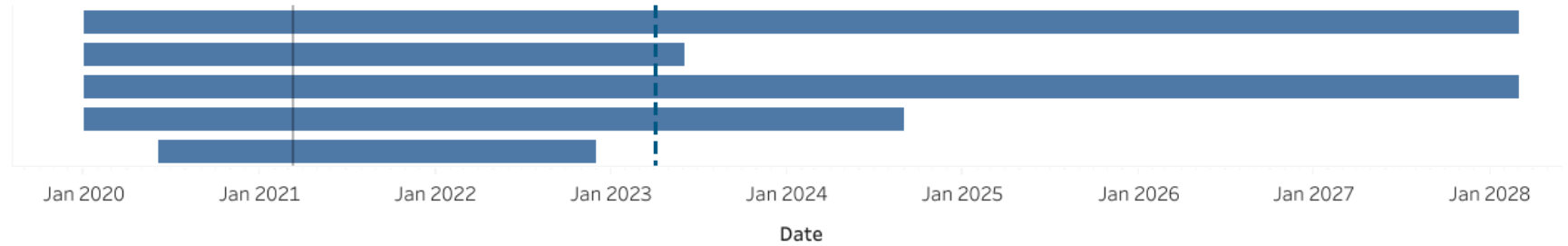
70 unique steps

266 contributions

Completed — 41
Implementing — 79
Initiated — 137
Not currently planned — 9

Function 8: Charging

Before:
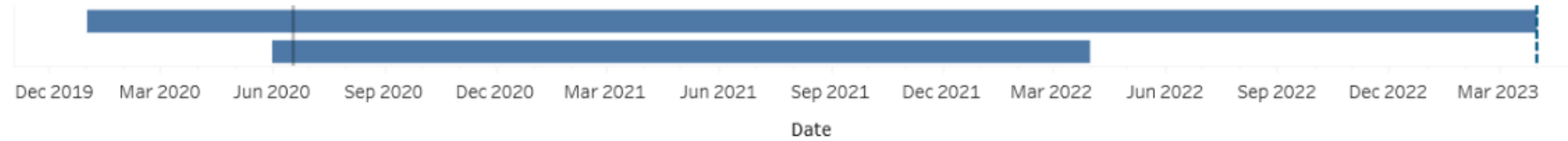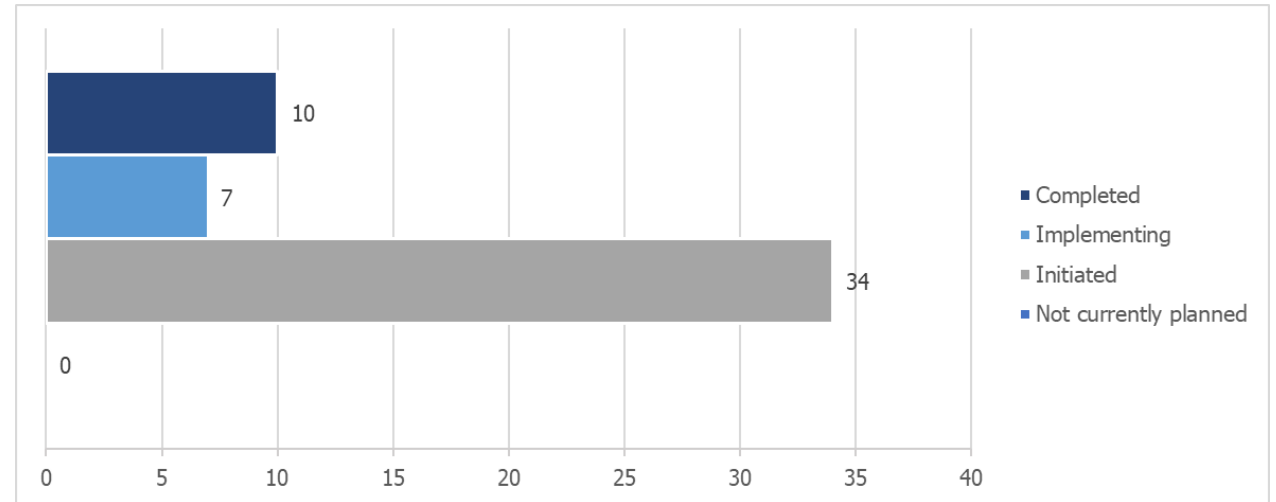
21 unique steps

51 contributions

Function 8: Charging

After:
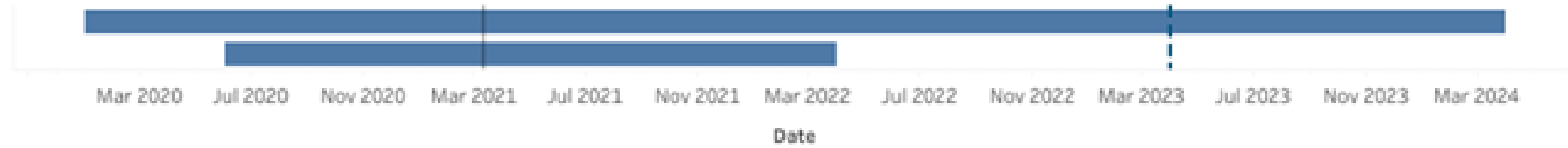
21 unique steps

51 contributions
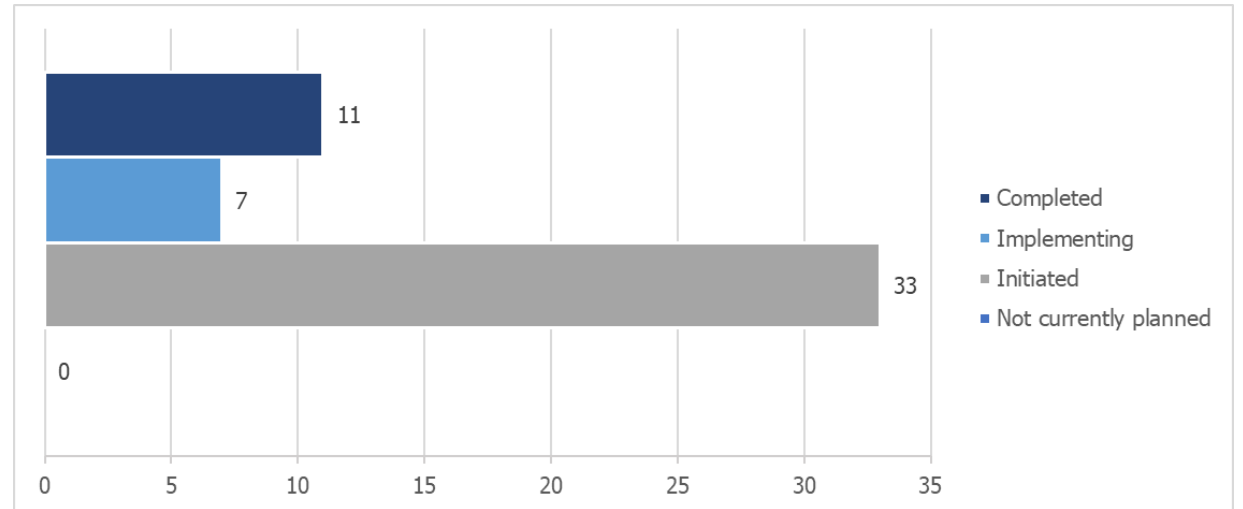
Q & A Session

Rafiek Versmissen (DNV)
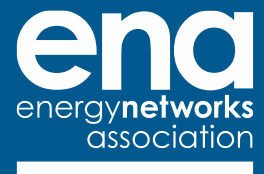Angeliki Gkogka (DNV)
Steve Atkins (SSEN)

Thank you for joining this webinar. To find out more or send us feedback, email us at opennetworks@energynetworks.org.

Contact Us

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The voice of the networks