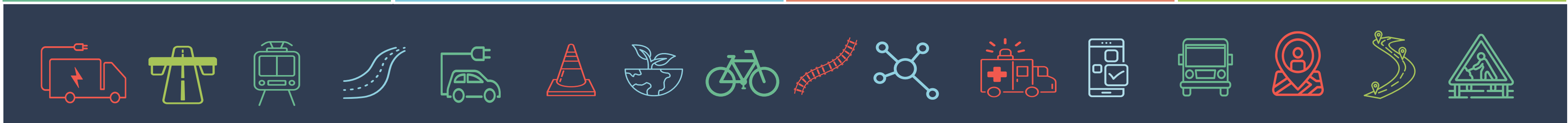
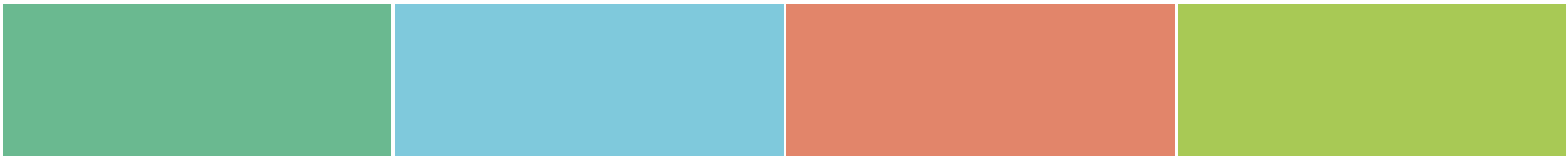


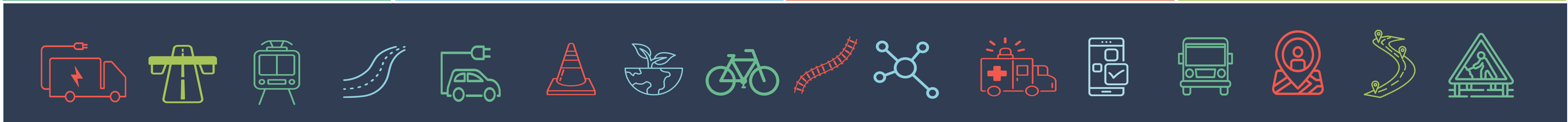
NATIONAL ROADS AND GREENWAYS CONFERENCE 2023

Thursday 28th and Friday 29th September 2023



High Voltage Interface Forum

*Martin Bourke, Transport Infrastructure Ireland
Stephen Flynn, Road Management Office.*

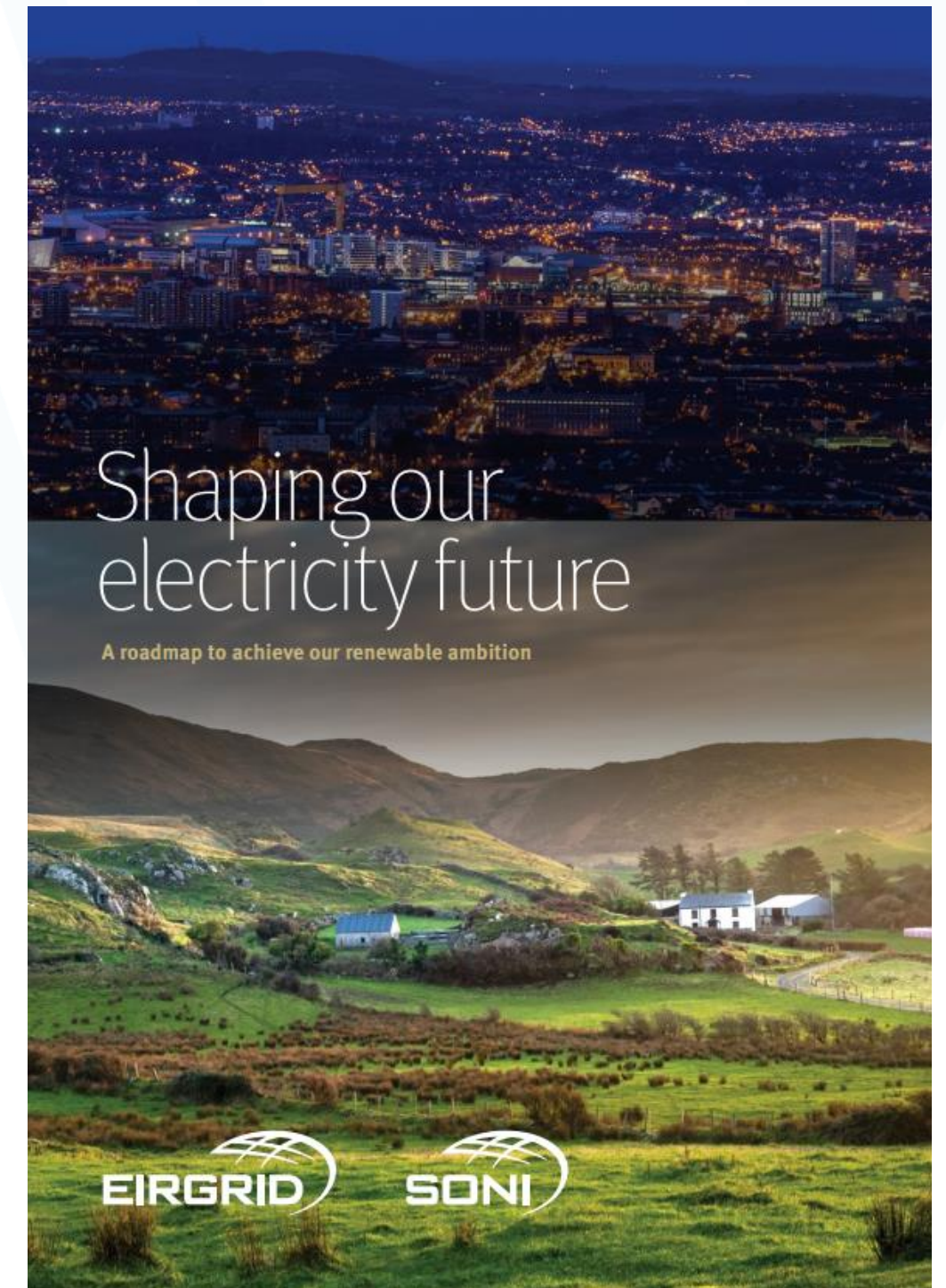


Contents

- 1. Background & Policy**
- 2. Existing Protocols**
- 3. Impacts**
- 4. HV Forum Structure**
- 5. Current status**
- 6. Private Wires**

Shaping our Electricity Future 2021

- Several industry respondents recommend the undergrounding of transmission cables where feasible **to mitigate public acceptance risk and minimise environmental impact.**
- A key strategic enabler is the use of the **public road** network in scenarios where a decision has been taken to install **underground** cable following an assessment of various options. **This use of the road network is a key enabler for timely project delivery and to minimise routing constraints.**



Climate Action Plan 2023

- Recognises electricity will play an important role in the decarbonisation of other sectors through electrification, including transport.
- Accelerates Renewable Generation by increasing the proportion of renewable electricity to up to 80% by 2030. Target of 9 GW from onshore wind, 8 GW from solar, and at least 5 GW of offshore wind energy by 2030.
- **Grid infrastructure is critical to maintain secure reliable and economic power system.** Technical solutions are necessary to make the grid more resilient to better handle the variable nature of renewable electricity.



Climate Action Plan 2023

12.3.1 Accelerate Renewable Electricity Generation

Grid Scale Renewables

The following measures will support Ireland's renewables acceleration programme:

- *Ensure that renewable energy generation projects and associated infrastructure are considered to be in the overriding public interest*
- *Develop a policy on 'private wires' and, if necessary, pass any required facilitating legislation by end 2023*
- *Strengthen the electricity system by upgrading the network and building supporting infrastructure at key strategic locations*
- ***Enable the use of the public road and potentially the rail networks for routing of new public and private electricity circuits.***



Rialtas na hÉireann
Government of Ireland

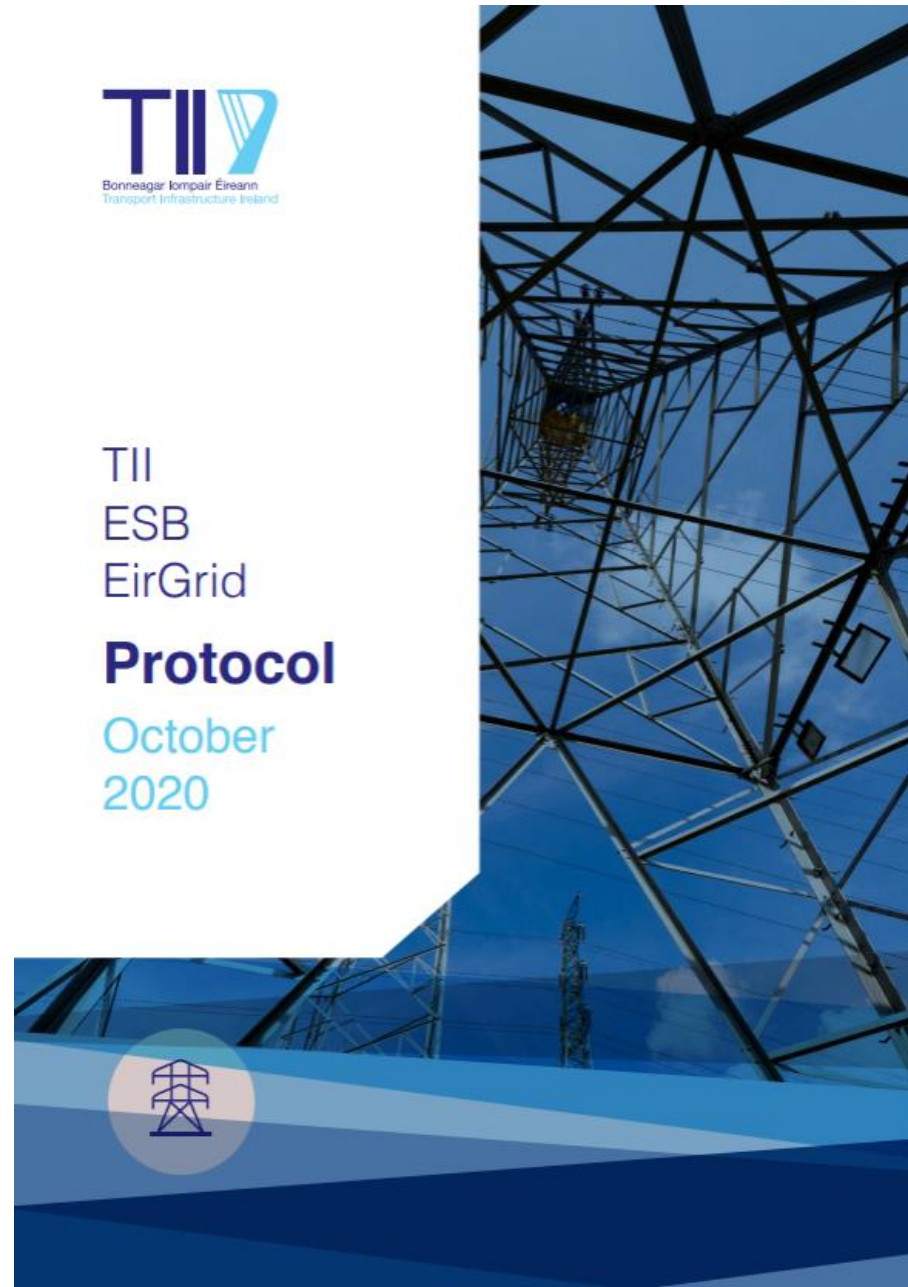
CLIMATE ACTION PLAN 2023 CAP23

Changing Ireland for the Better



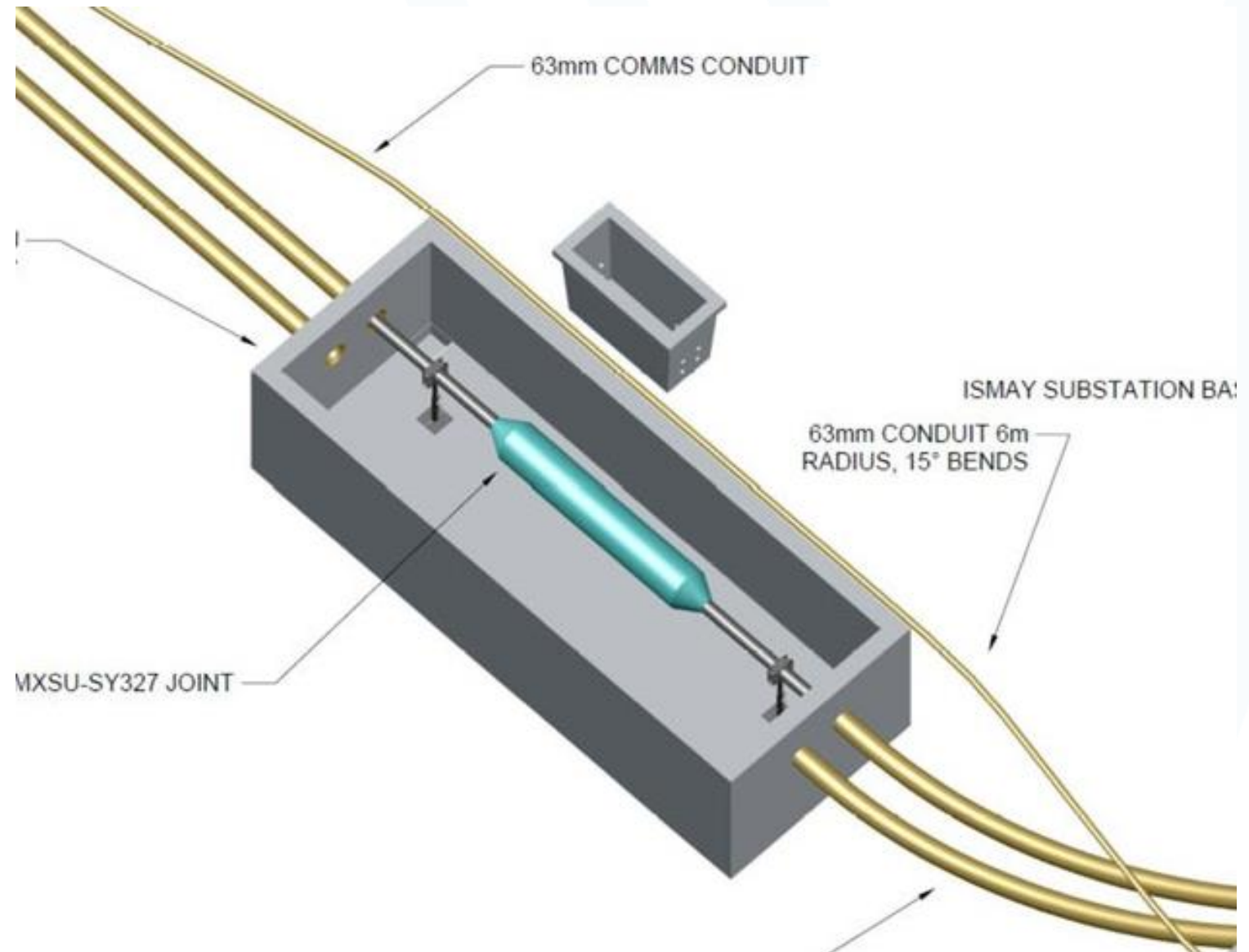
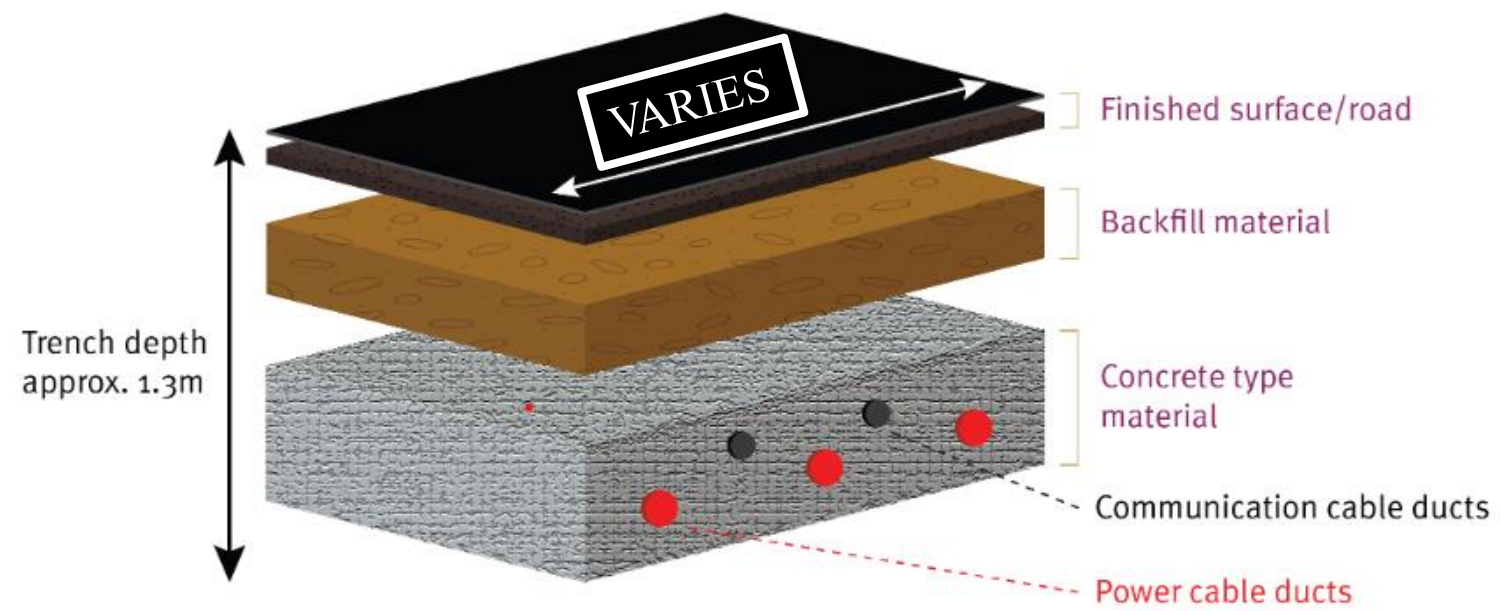
TII-EirGrid-ESBN Existing Protocols

- Existing protocol for Roads generated conflicts
- Desire of the Energy Sector to Reverse Engineer this for Energy Conflicts
- Celtic interconnector
- North Connacht



Phase	Road Design Activities	Interaction
Phase 0 Scope and Pre-Appraisal	Prepare Project Appraisal Plan	None
Phase 1 Concept and Feasibility	Procure Technical Advisors Feasibility Reports (if necessary)	None
Phase 2 Option Selection	Constraints Gathering	Interaction 1
	Route Corridor Option Generation	
	Route Corridor Option Refinement	
	Route Corridor Selection	Interaction 2
Phase 3 Design and Environmental Evaluation	Topo - GI and Other surveys	
	Landowner Engagement	
	Design Refinement	Interaction 3 *
	EIAR / CPO / MWO Finalisation	Interaction 4 *
Phase 4 Statutory Process	Publish Statutory Orders	Interaction 5
	Oral Hearing	
	Planning Decision	Interaction 6
Phase 5 Enabling and Procurement	Review Planning Conditions	
	Take Possession of Land	
	Undertake Advance Works	Interaction 7 *
	Procure Main Works Contracts	Interaction 8 *
Phase 6 Construction and Implementation	Construct Scheme	Interaction 9
Phase 7 Closeout and Review	Scheme Closeout	Interaction 10

Typical equipment HV UGC



Typical HV UGC: In Technicolour



Impacts on Roads - Construction Stage

- Pavement Excavation and reinstatement
- Structures especially legacy
- Poor Ground; Bog ramparts
- Existing Services and Road Assets
 - VRS, Drainage, lighting, signs...
 - Other Utilities; Water, Telecommunications..
- Traffic delays
- Extraordinary loads



Impacts on Roads - Operational

- Maintenance
 - Pavements rehab & **overlay**, bridges & other assets
 - Drainage and provision of future drainage (climate adaption)
 - Existing utilities infrastructure
- Future Road upgrades
- Future use of **SCARCE** public road space and substratum for additional utilities.



TII submission to ABP on EirGrid 110KV North Connacht

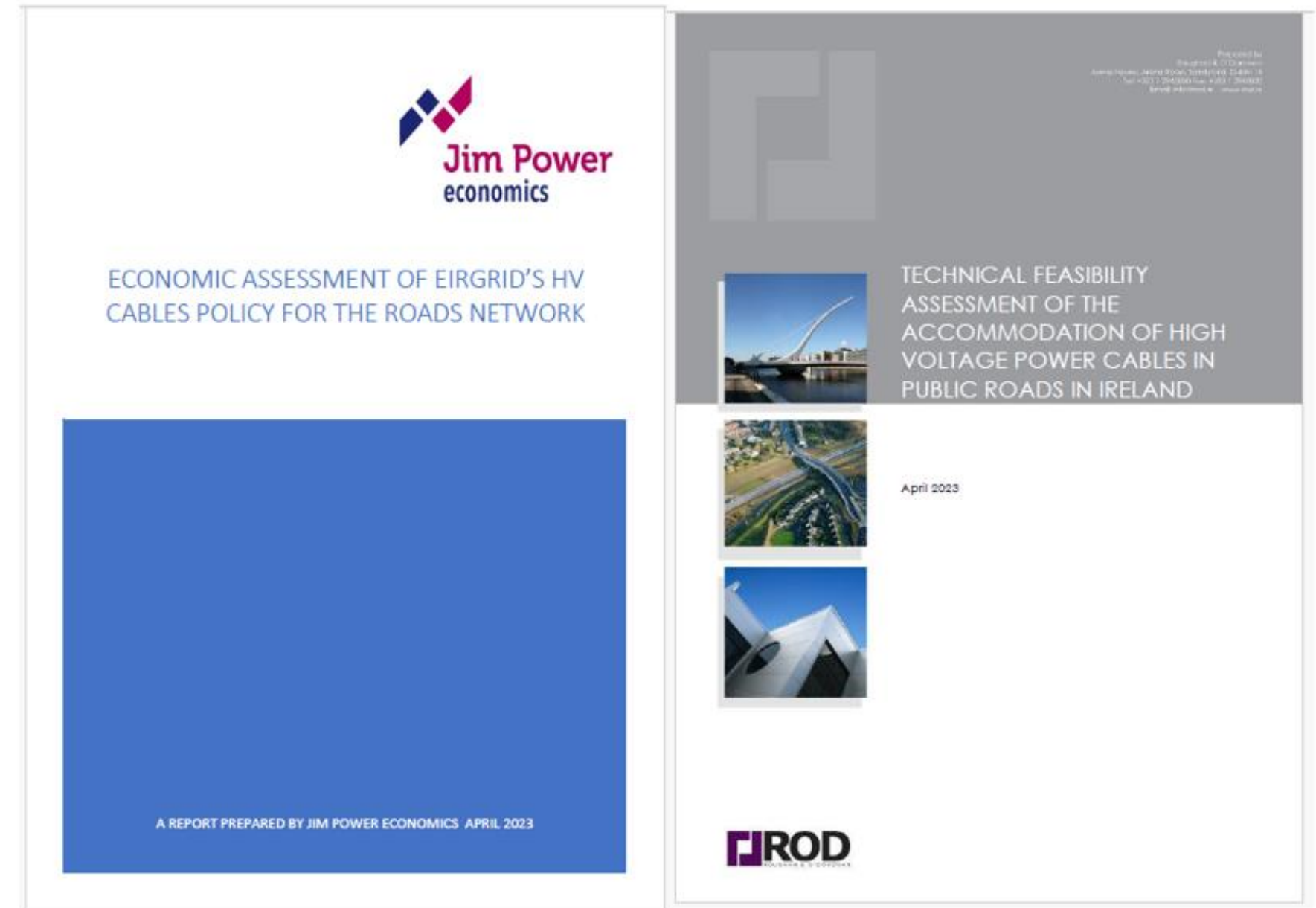
High Voltage (HV) Forum

- Electricity and road sectors bringing together stakeholders in open dialogue to establish the ways of working that will deliver on CAP23.



Roads Stakeholders Position

- Two consent processes:
- 1. Planning Permission; SID
- 2. Road opening License
- ROD Technical report
- Jim Power Economic Report
 - Delay Costs
 - Increased Maintenance Costs
 - Reinstatement Costs
 - Carbon



Co-operation Agreement

Acknowledgement that

- routing along public roads **where practical**, is a key enabler.
- **cost for roads authorities** in project delivery to be covered.
- infrastructure in roads creates the potential for **future cost liabilities**.

Work towards accommodating the electricity transmission infrastructure, **provided that significant roads impacts are objectively identified and addressed.**

Early engagement is a key requirement.

Full assessment of route options, **including alternatives to public road where appropriate**

Framework to define protocols for engagement between electricity and roads sectors **through lifecycle.**

Best practise protocols so that electrical & road infrastructure can be effectively operated, maintained & repaired.

The Forum will seek to address protocols for addressing **liabilities** arising from operation of transmission Infrastructure.

Electricity Infrastructure Development

Cooperation Agreement

August 2023

DRAFT - CONFIDENTIAL & COMMERCIALY SENSITIVE



Working Groups

WG1 North Connaught Project

WG2; Transitional Projects (Kildare Meath and East Meath North Dublin)

WG3; Pre-planning process review as part of the Grid Delivery Framework (6-step process)

WG4; Costs and Liabilities

WG5; Protocols and Standards

WG1 North Connaught Project

- approximately 59 kilometres between the Moy near Ballina, Co. Mayo and Ballaghaderreen, Co. Roscommon
- Submitted to ABP in June 2022
- LA & TII submission made.
- Further information sought from EirGrid and submission made
- Inspectors report Dec 2023
- Decision Sept 2023



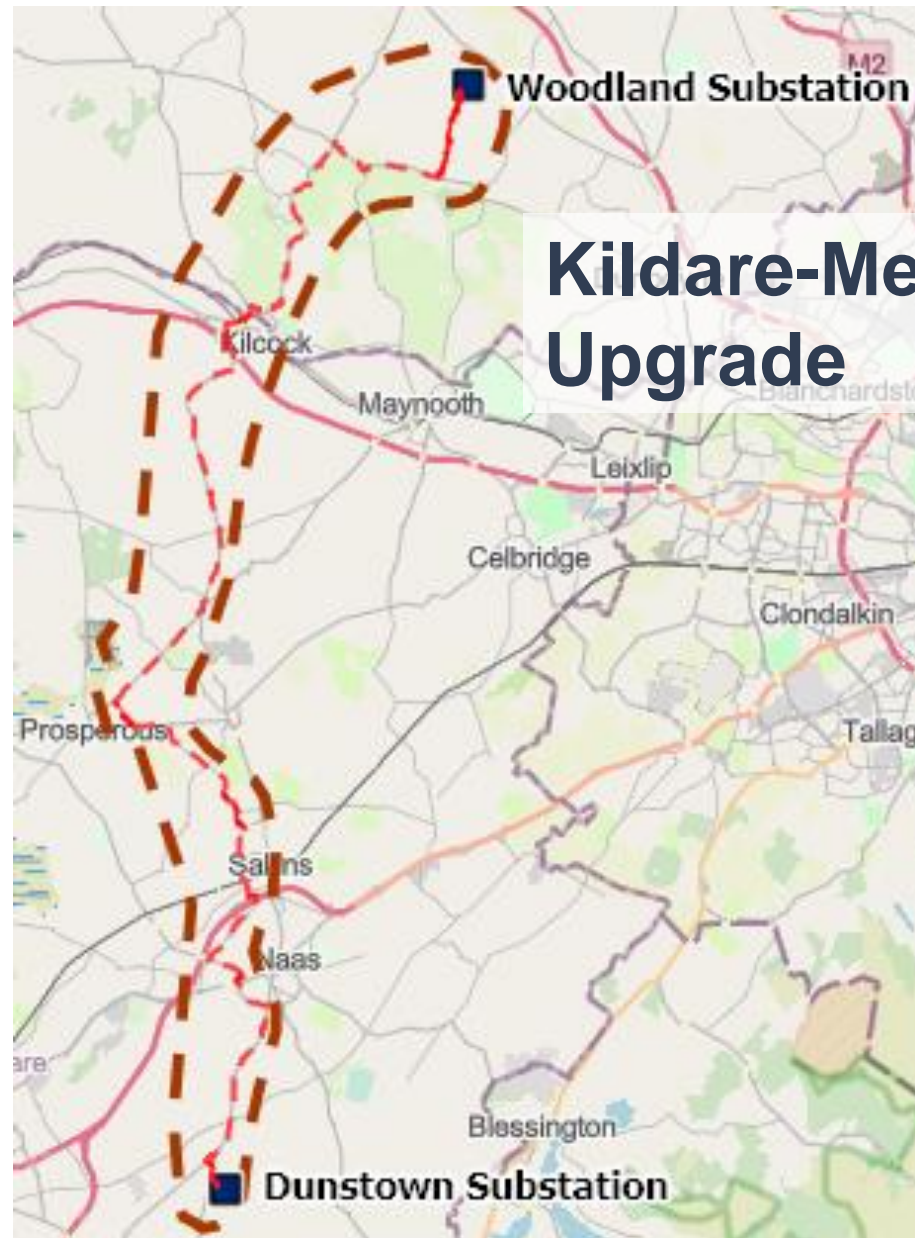
WG1 North Connaught Project

- Workshops with ESB/ EirGrid / TII
- Working Group 1 meetings in March, May and June
- Design review outputs shown below
- ABP decision in September show importance of engagement (see [s313724.pdf](https://www.pleanala.ie/s313724.pdf) (pleanala.ie))
- Use of road opening licences to manage works

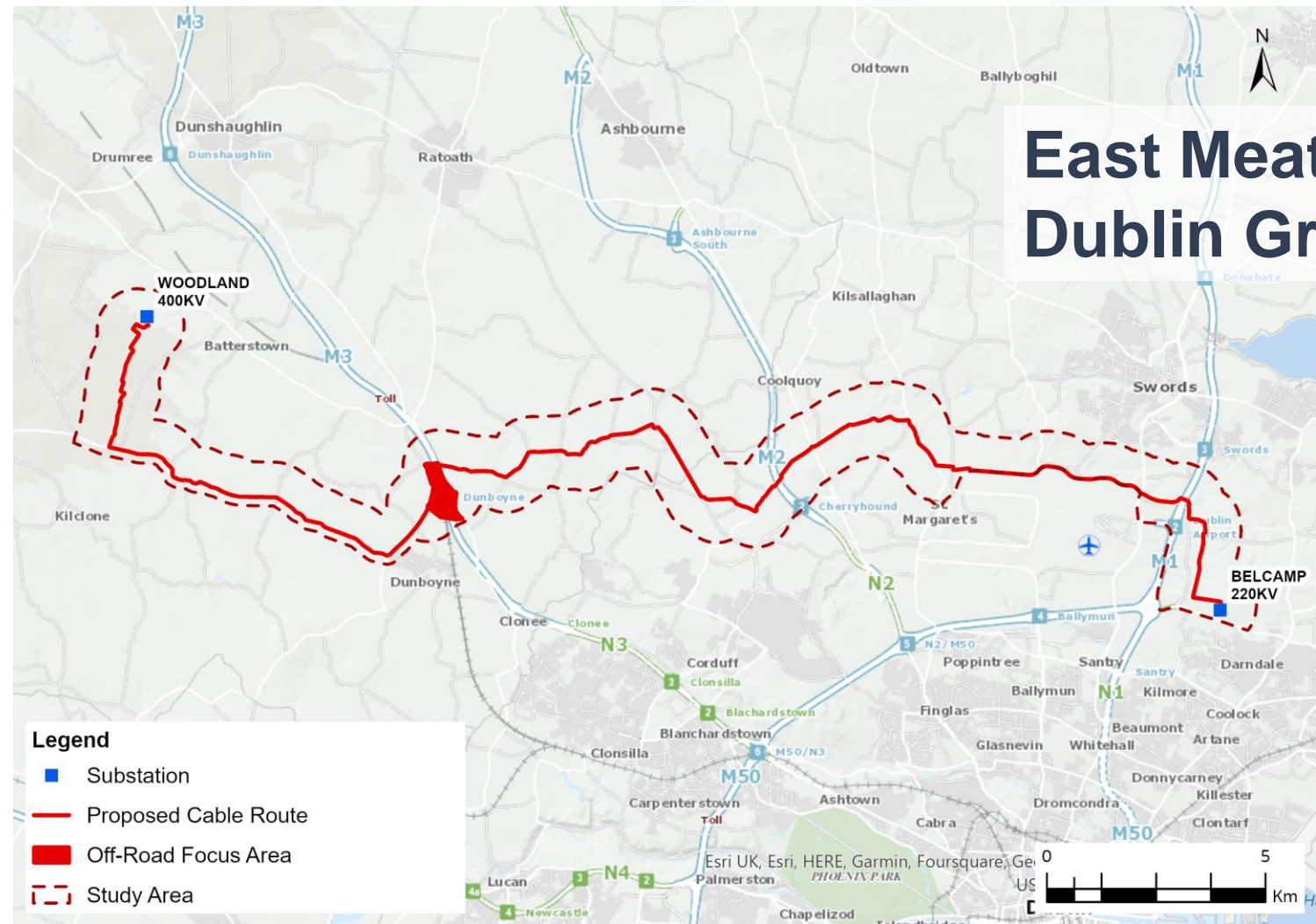


	Project Overall			
	Joint Bays		Trench	
	Total No	On Road	In Road	Off Road
Planning Design	79	65	53.4 km	5.6 km
Design Review	51	7	23 km	36 km

WG2; Transitional Projects (Kildare Meath and East Meath North Dublin)



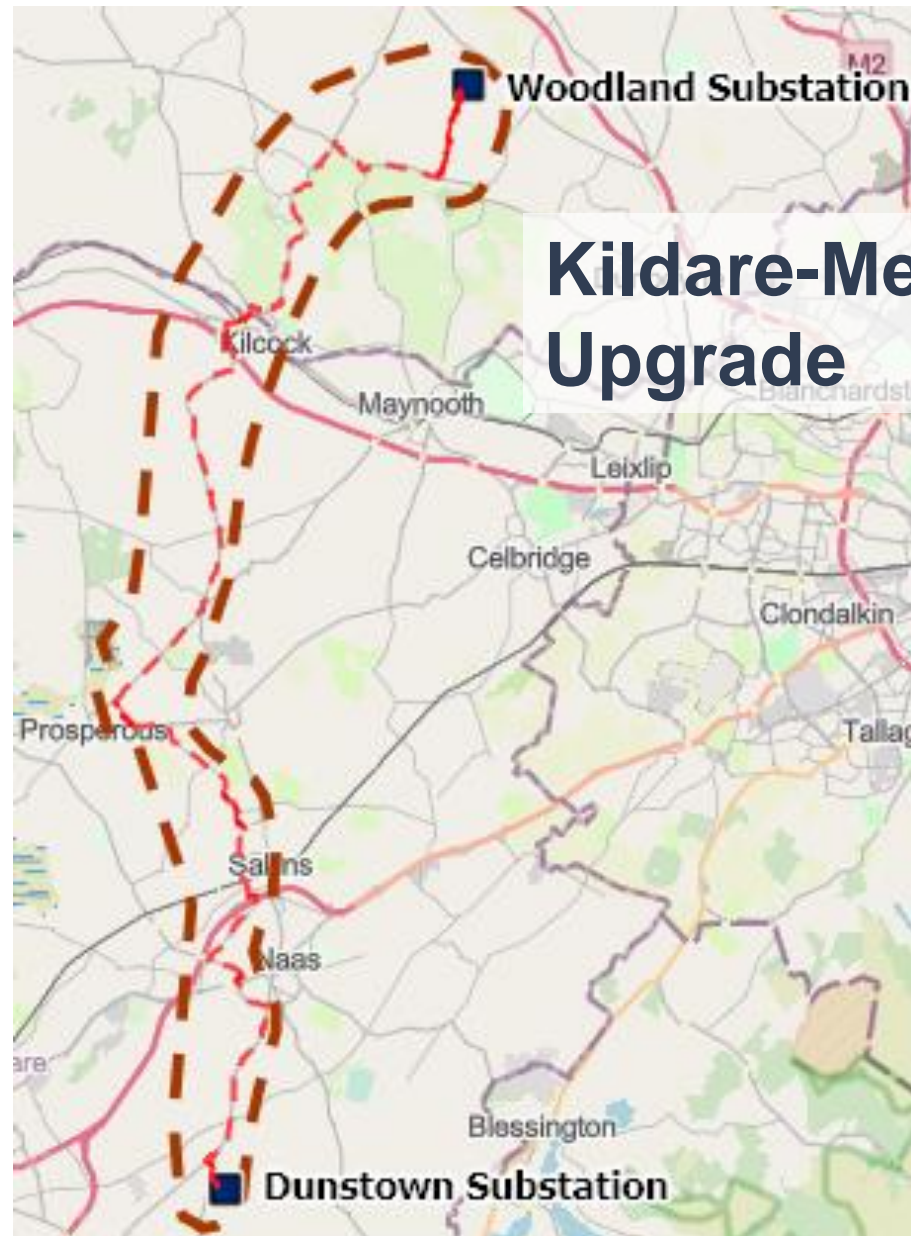
Kildare-Meath Grid Upgrade



East Meath North Dublin Grid Upgrade



WG2; Transitional Projects (Kildare Meath and East Meath North Dublin)



Kildare-Meath Grid Upgrade

- Planning Application submitted to ABP on 21st April 2023
- Public observation period concluded on 16th June 2023
- EirGrid submission to observations issued to ABP in August 2023

WG2; Transitional Projects (Kildare Meath and East Meath North Dublin)

- Planning pre-application consultation request submitted to ABP on 19th July 2023
- EirGrid target is to submit planning submission to ABP in December 2023



WG3; Pre-planning process review as part of the Grid Delivery Framework

- **EirGrid Development Process Six Steps**
- **How do roads impacts fit into this process**
 - **Route selection?**
 - **Constraints?**

Project Step	Summary	Network Development Activities
Step 1 How do we identify the future needs of electricity grid?	Assess the existing system using future energy scenarios to identify and verify any issues or risks arising for the transmission grid that may result in a grid development project	System Needs Assessment Lifecycle Planning and Maintenance Policy <i>Outputs:</i> EirGrid's Energy Scenarios Tomorrow's Energy Scenarios Needs Assessment (TESNA) Needs Ranking Report
Step 2 What technologies can meet these needs?	Developing a longlist, and subsequent shortlist, of technology options to meet the identified need	Performance Matrix – Longlist and Shortlist analysis <i>Outputs:</i> <i>Shortlist of options for detailed optioneering</i>
Step 3 What's the best option and what area may be affected?	Identifying a best performing solution (technology & corresponding study corridor area) considering all criteria, from the shortlist of options. This will include identifying environmental and other constraints within that study area.	Social Impact Assessment (SIA) <i>if required</i> Technology options consultation if SIA undertaken Enhanced Performance Matrix – social, environmental & commercial impact Confirming Project Need <i>Outputs:</i> Enhanced Performance Matrix Best Performing Technology Solution and Study Corridor Area Planning approval mechanism Project Consultation & Engagement Plan Capital Approval – EirGrid Board
Step 4 Where exactly should we build?	Identifying the specific nature, extent and location of the proposed development	Survey and detailed high-level assessments of technical, environmental & social impacts Local & Landowner engagement & feedback Confirming Project Need CPP-PA Process Commenced
Step 5 The Planning Process	Obtaining statutory consent for the proposed development, or confirming that the proposed development is exempted development not requiring consent	Outline Technical Design Planning Application Documents inc. Technical, Environmental, Social impact assessments Formal Sanction to submit Planning Application (internal)
Step 6 Construction	Building the project on the ground in liaison with ESB Networks (ESBN) and administering our Community Gain Fund to affected communities	Project Implementation Plan Project Procurement CPP submission to ESBN & Project Agreement

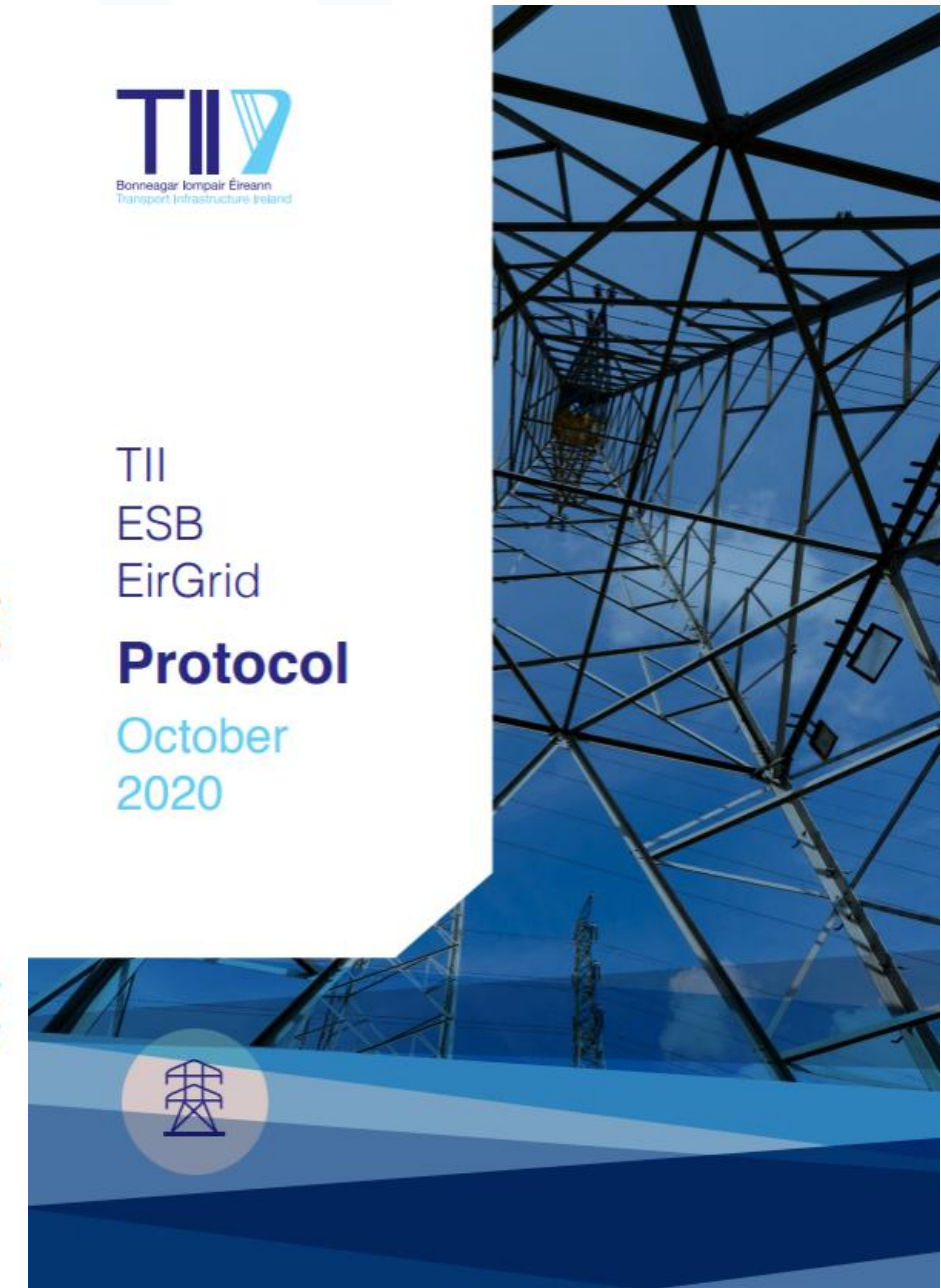
WG3; Pre-planning process review as part of the Grid Delivery Framework

- TII Development Process eight steps
- Existing agreed process for interaction on new road schemes
- Learning from this to be integrated into new protocol

Phase	Road Design Activities	Interaction
Phase 0 Scope and Pre-Appraisal	Prepare Project Appraisal Plan	None
Phase 1 Concept and Feasibility	Procure Technical Advisors Feasibility Reports (if necessary)	None
Phase 2 Option Selection	Constraints Gathering	Interaction 1
	Route Corridor Option Generation	
	Route Corridor Option Refinement	
	Route Corridor Selection	Interaction 2
Phase 3 Design and Environmental Evaluation	Topo - GI and Other surveys Landowner Engagement	
	Design Refinement	Interaction 3 *
	EIAR / CPO / MWO Finalisation	Interaction 4 *
Phase 4 Statutory Process	Publish Statutory Orders	Interaction 5
	Oral Hearing	
	Planning Decision	Interaction 6
Phase 5 Enabling and Procurement	Review Planning Conditions Take Possession of Land	
	Undertake Advance Works	Interaction 7 *
	Procure Main Works Contracts	Interaction 8 *
Phase 6 Construction and Implementation	Construct Scheme	Interaction 9
Phase 7 Closeout and Review	Scheme Closeout	Interaction 10



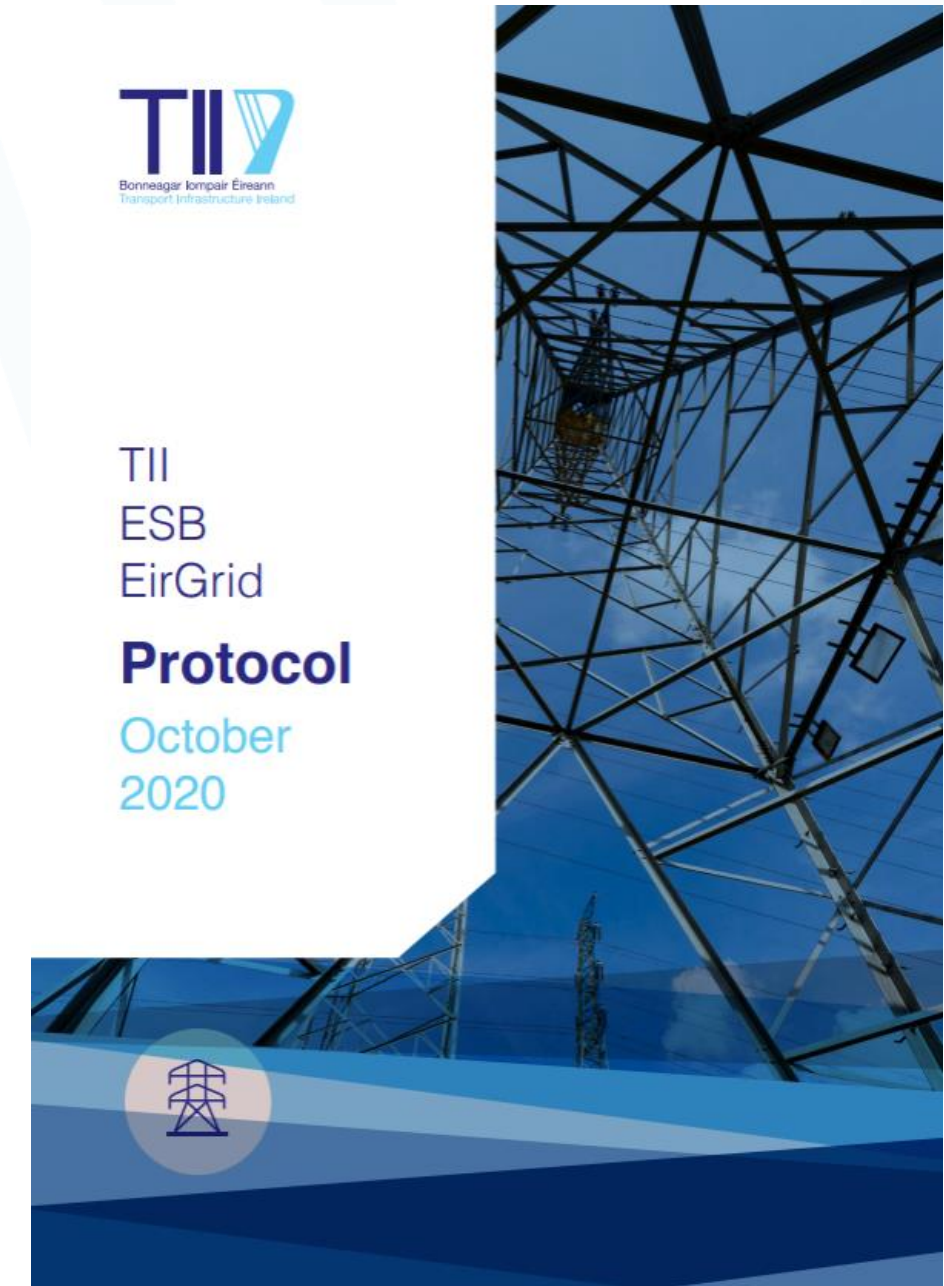
TII
ESB
EirGrid
Protocol
October
2020



WG3; Pre-planning process review as part of the Grid Delivery Framework

- “New infrastructure needs to consider future maintenance requirements.”
- Preferred hierarchy e.g. “No impact on existing infrastructure”
- How does early engagement occur to consider
 - Corridor evaluation & Constraints
 - Future Maintenance and Improvement
 - How does collaboration occur?

Project Step	Summary
Step 1 How do we identify the future needs of electricity grid?	Assess the existing system using future energy scenarios to identify and verify any issues or risks arising for the transmission grid that may result in a grid development project
Step 2 What technologies can meet these needs?	Developing a longlist, and subsequent shortlist, of technology options to meet the identified need
Step 3 What's the best option and what area may be affected?	Identifying a best performing solution (technology & corresponding study corridor area) considering all criteria, from the shortlist of options. This will include identifying environmental and other constraints within that study area.
Step 4 Where exactly should we build?	Identifying the specific nature, extent and location of the proposed development
Step 5 The Planning Process	Obtaining statutory consent for the proposed development, or confirming that the proposed development is exempted development not requiring consent
Step 6 Construction	Building the project on the ground in liaison with ESB Networks (ESBN) and administering our Community Gain Fund to affected communities



WG4; Costs and Liabilities

WG4 is tasked with addressing the financial aspects both direct costs and latent liabilities arising for roads authorities.

Issues to be considered in the 'end to end' development of HV projects are:

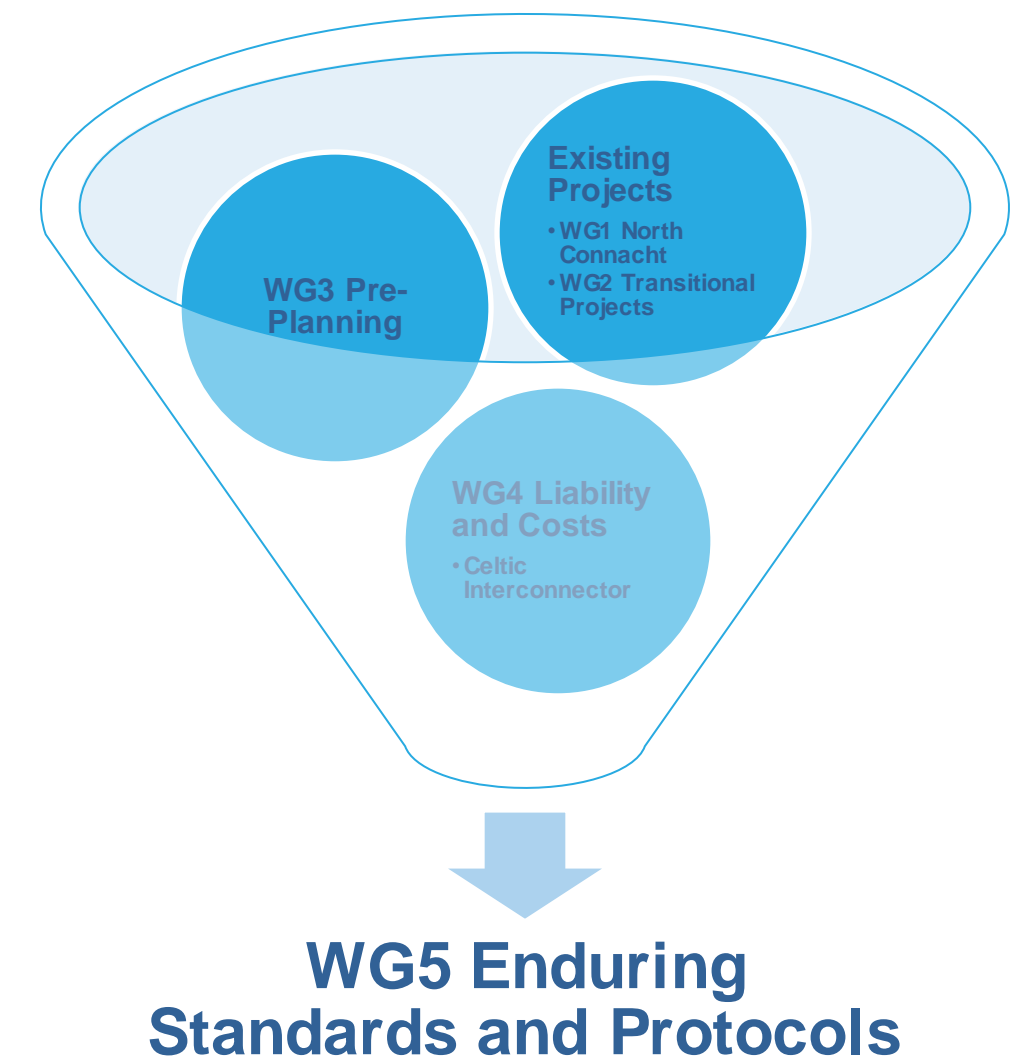
- **Direct Costs:** Road Authority resourcing in enabling effective engagement with the Eirgrid/ESBN Design teams through each stage,
- **Legacy Costs;** Long term Impact on Pavements (Purple Book?)
- **Operational Liabilities;** Measures to ensure that both roads and HV assets can be operated and maintained. Ideally these should be covered by protocols for mutual facilitation of necessary works,
- **Future Major Upgrades,** additional costs due to HV presence of infrastructure in the road will need to be factored into works budgets and funded accordingly.

WG5; Protocols and Standards

WG5 development of an enduring agreed set of protocols and standards that can be applied to future projects.

Based on learning from WGs 3 & 4

- Additional standards for construction and maintenance.
- How is road space rationed?
- Addendum to Purple Book?
- Agreed standard for consistency across the network.
- Similar examples to TII - Dublin City light rail. LAs Iarnród Éireann Bridge Agreements



Progress to date

- **Cooperation Agreement signed off at high level**
- **Good engagement in development of works on N5**
- **Clear understanding that detailed technical engagement is necessary not optional**

Work to do

- **Develop processes for engagement for planning, construction and operational phases**
- **Understand costs of having two (or more) important assets in the same place and how these cost can be minimalised to the state**
- **Create enduring processes and procedures ensuring communication and engagement that can be used for all development and operations**

Private Wires Consultation

- Open for submissions from 18 August 2023
 - Submissions closed 27 October 2023
 - Private individuals or undertakings running their own electricity cables in order to transfer electricity.
 - Private Wires in most instances will involve crossing land and/ or property that the cable owner and/ or operator does not own, whether this is privately or publicly owned land.
-
- Is ownership clear and regulated?
 - What standards are in place for privately owned cables?
 - What rights are given to private owners of cables in the roads (CPO?, Rights of Access?)
 - How are the rights of statutory undertakers balanced against each other and the road authority?



Thank you

Comments, views and feedback welcome
stephen.flynn@rmo.ie , Martin.Bourke@tii.ie

