



NETWORKS

DISTRIBUTION ANNUAL PERFORMANCE REPORT 2019

esbnetworks.ie



WELCOME TO ESB NETWORKS' 2019 DISTRIBUTION ANNUAL PERFORMANCE REPORT

At ESB Networks, our purpose is to lead the transition to a low carbon future powered by electricity. This means developing, operating and maintaining a network that supports the secure and affordable distribution of sustainable low carbon electricity. With this in mind, our strategy involves working with industry partners and stakeholders to connect much more renewable low carbon generation to Ireland's electricity network.

We will also strengthen our Network and develop the systems to support electric heating in our homes and electric transport on our roads.

ESB Networks maintains a strong focus on service excellence. We actively invest in the network and communications to ensure our network is safe and reliable for our customers. We are continuously seeking to reduce our impact on the built environment and develop more sustainable practises.

We actively listen to, and engage with, customers and stakeholders, enabling them to input into the development of our plans for the network and for the future. In this report you will find information on many aspects of our business which we hope you find useful.

EXECUTIVE SUMMARY

ESB Networks has continued to focus strongly on our customers in 2019. The number of new connections to the system continued to rise. In 2019 we connected 30,206 new homes and businesses (an increase of 12% on 2018). Our focus on the customer was recognised by successfully achieving the Customer Contact Association (CCA) Global Standard for Contact Centre performance for over ten years.

In 2019, our teams demonstrating a strong commitment to supporting customers to meet the REFIT deadlines by working to enable the connection of an additional 550 MW of renewable energy generation to the Irish electricity system, 313 MW of this being connected to the distribution system, bringing the total volume of renewables connected to the system to 4.6 GW.

In terms of Environmental Performance, ESB Networks continued to operate an Environmental Management System (EMS) which is externally certified to the ISO 14001 Standard. The business continues to actively reduce its environmental footprint while driving towards becoming a leading business in the area of sustainability.

The new ESB Networks Safety Strategy was launched in 2019 while also continuing to implement our 'Safe and Sound' safety culture transformation programme. As part of this strategy we carried out extensive public safety engagement and awareness campaigns.

ESB Networks increased its annual investment in the distribution network in 2019 with €267 million of capital expenditure incurred on development and renewal, in addition, €294 million of operating expenditure was incurred on operation and maintenance activities.

Throughout 2019, ESB Networks continued its ambitious and active innovation programme by progressing a portfolio of innovation projects. Many of these innovation projects are focussed on paving the way to a low carbon society. We also continued to develop expertise and innovation capacity across the organisation and increased our level of third-party engagement and collaboration in the innovation process.

The Smart Metering Programme began the initial phase of smart meter installations towards the end of 2019, with c15,000 smart meters installed by the end of the year, putting the programme on track to replace up to 2.3 million meters with digital smart meters over the coming years.

ESB Networks is planning for the future in terms of how we are going to support Ireland in transitioning to a low-carbon economy and energy system. We strongly support the objectives of the government's Climate Action Plan which was launched in 2019 and we recognise our role in its successful delivery. ESB Networks successfully delivered all of its 2019 actions under this plan. We are fully committed to connecting greater amounts of renewable generation and to supporting the electrification of heat and transport, thus facilitating Ireland's transition to a low carbon energy future, powered by clean electricity.

The Dingle Project aims to trial a number of technologies to help ESB Networks understand the impact of these technologies on the low and medium voltage networks so that we can continue to meet our customers' changing needs for the low carbon transition, while providing a reliable electricity infrastructure.

CONTENTS

ESB Networks DAC is the licensed Distribution System Operator (DSO) in the Republic of Ireland. The Irish distribution electricity system includes all distribution stations, overhead electricity lines, poles and underground cables that are used to bring power to Ireland's 2.4 Million domestic, commercial and industrial customers.

Each year we report on our performance for the Commission for Regulation of Utilities (CRU). The following report details ESB Networks performance as the Irish DSO for 2019. In each of the following sections we have reported on our progress and performance delivering on the plans approved by the CRU for Price Review 4 (PR4) – the period from 2016 – 2020.

01. CUSTOMER SERVICE	10
02. RELIABILITY AND RESILIENCE	20
03. NEW CONNECTIONS AND GROWTH	28
04. ENVIRONMENT	34
05. SAFETY	40
06. DSO ANNUAL FINANCIAL PERFORMANCE	46
07. SOCIAL OBLIGATION AND ENGAGEMENT	50
08. INNOVATION	54
09. CONNECTIVITY AND DIGITALISATION	58
10. SERVICE LEVEL AGREEMENTS PERFORMANCE	62
11. REGISTER OF ASSETS	66

2019 HIGHLIGHTS

NEW CONNECTIONS

- > **25,427** New Domestic Connections
- > **4,779** New Commercial Connections
 - > **313** MW of Distribution Connected Renewables
 - > **28** Large Scale Generation Projects connected to the Network

SAFETY

- > A revised **Code of Practice** for Overhead Electricity Lines
- > A new **'Safe Construction with Electricity'** booklet launched
- > ESB Networks delivered interactive sessions with over **1,000 pupils** as part of the **'Keep Safe'** programme

INNOVATION

- > **42** Active Innovation Projects

DSO ANNUAL FINANCIAL PERFORMANCE

- > Approved DUoS revenues of **€827.5m**
- > Distribution Capital Programmes in 2019
 - **€267m** invested in 2019
 - **69%** of PR4 allowances invested by end of 2019

SMART METERING

- > **c. 15,000** Smart Meters Installed

CUSTOMER ENGAGEMENT

- > **CCA Accreditation** successfully retained
- > Awarded the **CCA silver membership award**
- > **40k+ followers** on Twitter
- > **30k+ followers** on Facebook
- > **1,820 followers** Instagram
- > **2.67 million hits** on PowerCheck

DISTRIBUTION SYSTEM STATISTICS

- > **c. 150,000 km** of overhead lines
- > **c. 25,000 km** of underground cable
- > **c. 574** HV substations
- > **c. 22,269** MV ground mounted substations
- > **c. 242,647** MV pole mounted transformers
- > **c.337** MW of transformer capacity added

2019 PERFORMANCE SUMMARY

	2019	2019	2019	2018	2017	2016
Metric	Target	Financial Incentive	Performance	Performance	Performance	Performance
Customer Minutes Lost (CML) – unplanned outages	72.2	-€2.79m	87.47	97.43	90.34	79.05
Customer Interruptions (CI) ¹ – unplanned outages	1.02	-€4.42m	1.23	1.23	1.21	1.04
Customer Satisfaction (ESATRAT)	90%	€0.87m	91.17%	91.75%	91.19%	91.31%
Customer Satisfaction Survey (Red C)	81%	-€0.14m	80.82%	78.63%	79.43%	80.72%
One Meter Reading per Year	98%	€0m	97.82%	97.80%	97.83%	97.83%
Avoiding Back to Back Meter Estimates	99%	€0.86m	99.94%	99.85%	99.84%	99.41%
Smart Meter Installations	10,000 Meters	€0.51m	15,000 Meters	N/A	N/A	N/A
Stakeholder Engagement	10	€0.56m	67.5	6.8	N/A	N/A
Delivering New Connections (ECP-1)	All offers issued by 31st May 2020	€0.51m	On Target	On Target	N/A	N/A
No. of registered vulnerable customers	N/A	N/A	48,855	46,767	45,291	41,511
Total number of outages (planned and unplanned)	N/A	N/A	38,930	38,646	37,295	36,404

	2019	2019	2019	2018	2017	2016
Metric	Target	Financial Incentive	Performance	Performance	Performance	Performance
Worst Served Customers (WSC) ²	N/A	N/A	56% of WSC population as a direct consequence of severe weather	65% of WSC population as a direct consequence of severe weather	58% of WSC population as a direct consequence of severe weather	45% of WSC population as a direct consequence of severe weather
New Demand Connections	N/A	N/A	30,206	26,954	24,463	20,110
Capital Expenditure	Within PR allowances	Within PR allowances	€267m	€244m	€209m	€198m
Innovation	Strong (subject to CRU assessment)	€20m, plus €10m retrospectively awarded for 2018 improvements	Strong	€5m	€20m	€20m

¹ CI is represented per single customer

² Worse Served Customers are customers who have had at least 15 outages over 3 years, and at least 5 outages in the most recent year

01. CUSTOMER SERVICE

CUSTOMER CHARTER

We work hard to deliver a first-class customer experience, developing our customer communication channels, touch points and offerings. We are committed to improving on our performance every year to ensure customers' needs are met.

Our Customer Charter is a set of commitments to our customers.

1. We aim to restore supply in less than 4 hours for 95% of fault outages
2. We will give you at least 2 days' notice of an outage for planned work on the network
3. If your main ESB Networks fuse has failed, we will call out free of charge, within 3 hours if you call us between 8.30am and 11.00pm, or before 11.30am the next morning if you call after 11.00pm
4. We will install an electricity meter for you within 3 working days (for domestic customers, 5 working days for business customers)
5. We will send you a cost quotation for your new connection if you are building a new house or farm building, setting up a small business or renovating an older property, within:
 - > 7 working days if no site visit is required
 - > 15 working days if a site visit is required
6. We will complete your new connection to your new house or premises within 2 weeks of receiving your RECI³ Completion Certificate if you apply and pay giving us 10 weeks' notice
7. We will contact you within 10 working days if you are concerned about your supply voltage
8. We will resolve verified voltage concerns within 12 weeks (unless major reinforcement is required)
9. If you request a visit from an ESB Networks Network Technician, we will visit at an agreed time, or contact you the day before if we cannot make the agreed appointment
10. Where we agree that you are entitled to a refund, we will make the refund within 5 working days
11. In you use the Commission for Regulation of Utilities (CRU) complaint resolution service, we will honour any financial settlement they direct within 10 working days
12. If we fail to meet a Charter commitment, or (for 1 and 2) receive a valid claim, we will send you a cheque within 10 working days or pay you an additional €35

1,924 Charter Payments were made to our customers in 2019 versus 1,904 in 2018

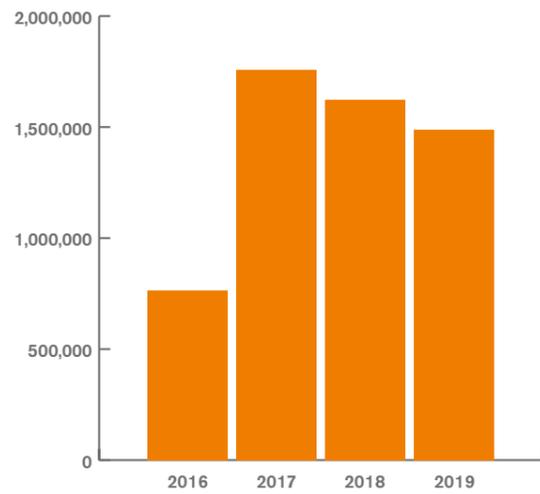
³ RECI are the present holders of the "Safe Electric" licence from CRU. "Safe Electric" is the brand name for the Electrical Safety Supervisor Board

HOW CUSTOMERS INTERACT WITH ESB NETWORKS

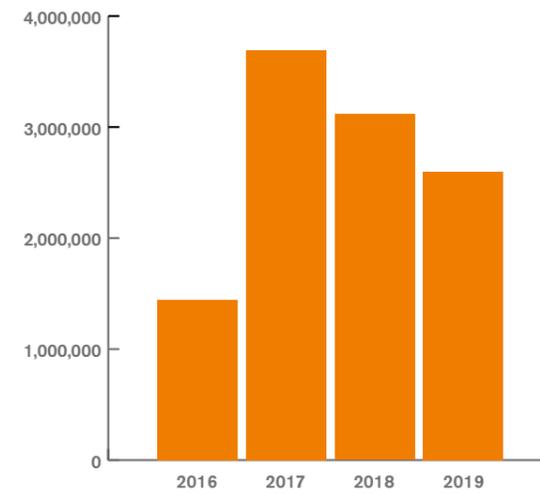
Customers interact with ESB Networks across many touch points including:

- > **The Customer Care Centre** which deals with over 1.4 million contacts per year, achieving customer satisfaction ratings above 90% and in 2019 was awarded the Customer Contact Association (CCA) silver membership award for successfully achieving the Global Standard for over 10 years
- > **Website and Social Media** where ESB Networks now has +47,000 Twitter and +30,000 Facebook followers, achieving +19 million combined impressions. ESB Networks included a further customer communications touchpoint, with the launch of ESB Networks' LinkedIn profile. Our website is seen by our customers as one of the most important touchpoints, in particular Powercheck.ie which gives real-time information on planned outages, faults and estimated restoration times

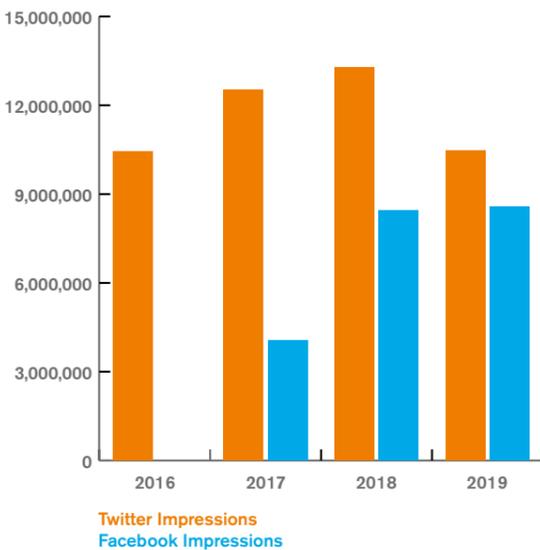
CALLS AND EMAILS ANSWERED



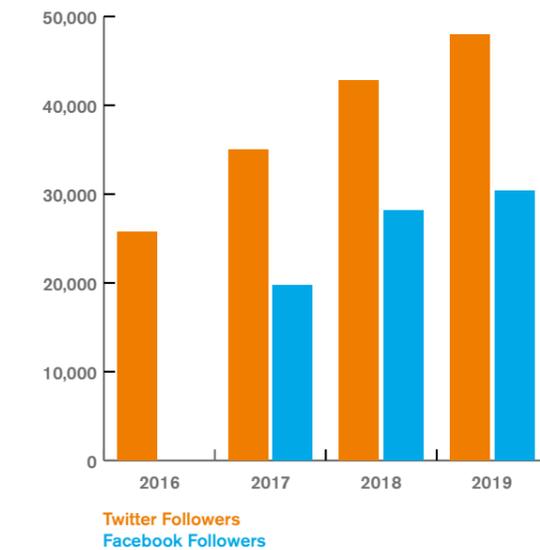
POWERCHECK APP HITS



SOCIAL MEDIA IMPRESSIONS



SOCIAL MEDIA FOLLOWERS



SOCIAL MEDIA

47,974 Followers on Twitter

30,395 Followers in Facebook

1,820 Followers Instagram

10,456,800 Impressions on Twitter

8,573,807 Impressions on Facebook

1,820 Impressions on Instagram

19,400,315 Combined impressions

2.67 million Hits on PowerCheck

In addition to providing customers with better information and assurance, the use of social media has reduced the requirement for customers to contact the Customer Care Centre during fault events. The advancement of our social media channels provides real-time fault update information to customers, thus reducing fault-related call volumes and enabling effective call handling where customers need to speak to ESB Networks.

CONTACT CENTRE ACHIEVES INDUSTRY AWARD

In 2019, ESB Networks successfully achieved the Customer Contact Association (CCA) Global Standard for Contact Centre performance. The Contact Centre was also awarded the Customer Contact Association (CCA) silver membership award for successfully achieving the Global Standard for over 10 years.

CONSULTING WITH CUSTOMERS AND STAKEHOLDERS

In 2019, ESB Networks increased the level of engagement and consultation with customers and stakeholders, particularly in relation to our Price Review 5 (PR5) proposals. Information on current consultations can be found on our website at <https://www.esbnetworks.ie/who-we-are/stakeholder-and-public-engagement/public-consultations>

CUSTOMER INTERACTIONS DURING STORMS

Weather related outages or cable damage cause significant disruption to ESB Networks customers. During such incidents customers contact ESB Networks via a variety of engagement channels including telephone, IVR, web/PowerCheck, email and social media resulting in peaks of activity across all channels. Mainstream media, TV, radio campaigns are used to communicate and engage with customers in a timely and proactive manner. ESB Networks also has a support service with an external partner to provide additional support for No Supply/Emergency Calls, particularly during periods of severe weather and large electricity outages.

VULNERABLE CUSTOMERS

We all rely on safe reliable electricity supply, however, some customers are more vulnerable to loss of electricity supply. A 'vulnerable customer' is a household which depends on electrical devices, such as medical equipment, or which is particularly vulnerable to power outages during the winter. Vulnerable customers receive priority attention when there is a fault on the network, furthermore we take care to give them extra notice of upcoming planned outages.

In 2019, 48,855 customers were registered as Vulnerable Customers, an increase of 2,088 from 2018. To register as a Vulnerable Customer, please contact your Electricity Supplier who will then notify ESB Networks.

CUSTOMER SATISFACTION SCORES 2019

91.17% ESATRAT

(Satisfaction rating of National Customer Care Centre)

80.82% RED C

(National Customer Satisfaction Rating)

CUSTOMER SATISFACTION SCORES EXPLAINED

(1) NATIONAL CUSTOMER CARE CENTRE

The incentivised satisfaction rating of the National Customer Care Centre (ESATRAT) out-turn score is derived from five Key Performance Indicators (KPI).

In 2019, our combined incentivised out-turn stood at 91.17%, compared to 91.75% in 2018. While 2019 saw less storm related calls to the Customer Care Centre than in 2018 (2018 saw increased calls as a result of Storms Emma, Ali and Calum), it did see more house completions, which reached a 10 year high up more than 18% on the previous year.

Breakdown of ESATRAT Incentive

	2018 Target	2018 Actual	2019 Target	2019 Actual
Speed of telephone response	88%	90.31%	88%	90.83%
Call abandonment rate	4%	2.74%	4%	2.57%
Customer call-back survey results	83%	94%	83%	90%
Mystery caller survey results	88%	85%	88%	85%
First contact / Call referral	10%	8.31%	10%	9.31%
ESATRAT (Total target)	90%	91.75%	90%	91.17%

This drove an increase in calls relating to new connections. In order to help the "Customer Journey" we looked at our processes across many touch points including the Customer Care Centre, social media, and the mainstream media.

A pilot was set up to engage with customers and highlight areas for improvement, the learnings from this helped inform our online connections application offering starting in late 2019 allowing customers to track their new connections journey.

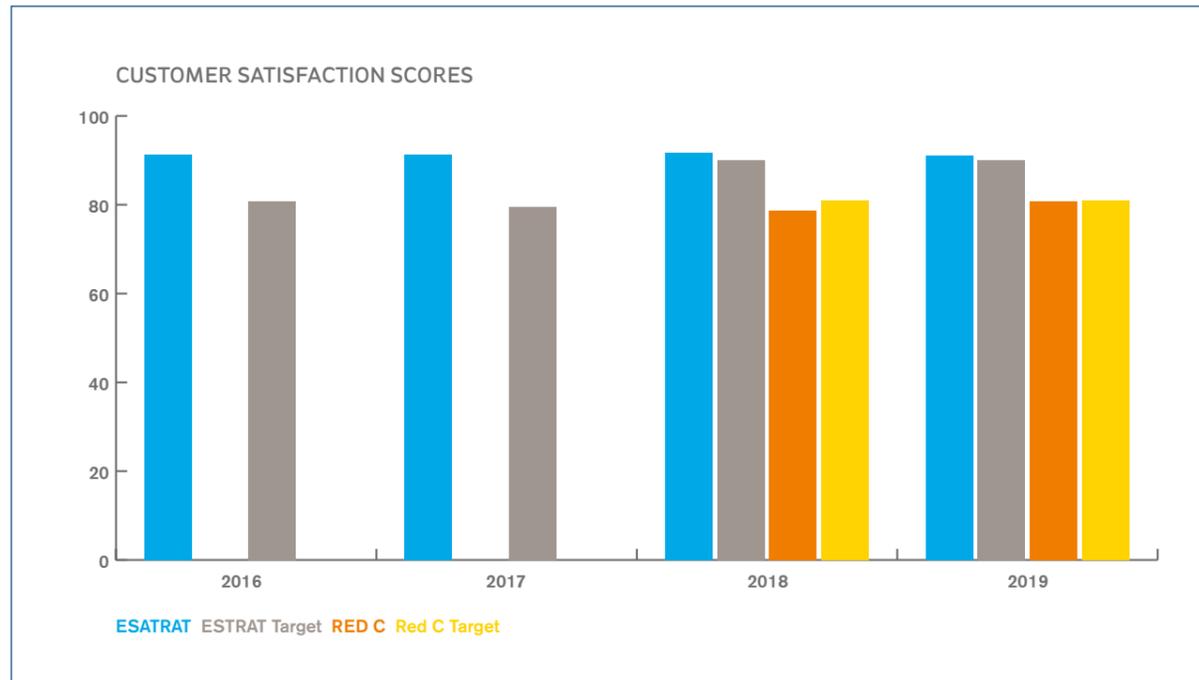
In addition, we successfully achieved the Customer Contact Association (CCA) Global Standard for Contact Centre performance and increased the level of engagement and consultation with customers and stakeholders.

(2) CUSTOMER SATISFACTION

The incentivised National Customer Satisfaction Rating (Red C Survey) out-turn score is the average of six Key Performance Indicators (KPI):

	Overall
Voltage Complaint Rectified (1 year rolling due to small base size)	82.53%
Unplanned Electricity Interruption	82.38%
Planned Electricity Interruptions	86.35%
New Connection - Scheme Builders	75.16%
New Connection - Non scheme	84.31%
New Connection - Business	74.16%
Average	80.82%

In 2019, our incentivised out-turn stood at 80.82%, compared to 78.63% in 2018. The overall increase from 2018 to 2019 can be attributed to notable improvements in the KPIs for New Connection – Scheme Builders, and New Connection – Business. This was especially driven by improved satisfaction with the application process and information provision, but we also saw notable improvements in results for prompt installation and speed of quotation. The KPIs were also up for New Connection - Non-Scheme and Unplanned Interruptions.



(Note, there were no targets in place for 2016 and 2017)

Customer service performance for 2019 is explained in detail in this report. The changes in previous years can be summarised as follows.

> 2016 saw both our ESATRAT and Customer Satisfaction (Red C) scores improve on the previous year due to a number of reasons such as improved customer satisfaction with our handling of voltage complaints and our new connections process for scheme builders and businesses. While 2016 also saw the introduction of an automated fault logging option for customers to log No Supply calls directly in IVR without speaking to an agent.

- > 2017 saw both scores reduce slightly as a result of the effects of severe weather e.g. Ex-Hurricane Ophelia, as well as decreased satisfaction with planned interruptions and the new connections process for scheme builders.
- > In 2018, the ESATRAT score improved despite several significant weather events including snow storm Emma. The advancement of our social media channels, which provide real time fault information, played a significant role in some of this improvement. While on the other hand our Red C score reduced slightly due to a drop in satisfaction with the new connections process for businesses and for unplanned interruptions. However, satisfaction with planned interruptions and new connections has since improved.

NATIONAL CUSTOMER CARE CENTRE

1,489,756 CUSTOMER CONTACTS HANDLED COMPARED TO 1,624,293 IN 2018

Call Handling Response	2016	2017	2018	2019
Percentage of calls answered within 20 seconds ¹	91.4%	90.9%	90.31%	90.83%
Percentage of calls dropped ²	2.3%	2.3%	2.74%	2.57%
Networks customer calls to the call centre ³	469,195	470,333	451,494	429,589

¹ Figures are inclusive of storms, which involve much higher call volumes during these events. This results in challenges regarding the call handling and percentage-of-calls-dropped performance metrics

² Where the customer has terminated the call without waiting for a response

³ Calls relating to ESB Networks excluding IVR

Complaints Received	2016	2017	2018	2019
Concerning low voltage	26	19	21	28
For frequent outages	1,066	1,259	1,199	1,655
Time to connect customers	31	38	48	33
Operation delays and overruns	117	93	148	186
From suppliers	0	0	0	0
On meter reading and estimated reads	356	292	444	247
Others	1,144	981	1,542	1,616
Total complaints received	2,740	2,682	3,202	3,765

The year-on-year rise is largely due to the increase in 'Others' category which includes items such as Smart Metering, telephone and call centre response times, network charges, storm response, other metering/time switch items. The average time to close a complaint stands at 2 days. In addition, ESB Networks have modified the approach in categorising customers' complaints.

This important improvement allows ESB Networks to more accurately address the trending issues as identified by our customers.

As part of the overall Customer Experience Transformation Programme, a complaints and referral work stream has been established to drive valuable insights that will improve our customer delivery and service.

Meter Reading Performance

	2016 Performance	2017 Performance	2018 Performance	2019 Performance
2 Scheduled reading visits per annum	100%	100%	99.99%	99.99%
4 Scheduled reading visits per annum	99.07%	99.52%	99.64%	99.60%
One actual read per annum	97.83%	97.83%	97.80%	97.82%
No Consecutive Block Estimations	99.41%	99.84%	99.85%	99.94%

The initiatives in progress include:

- > Improved recording and categorisation of all complaints
- > Increase first touch resolution of customer service complaints
- > Interactive dashboards communicated across the business
- > Customer Action Forum to take place quarterly to discuss and drive action around the root causes of complaints

In 2019, there were 91 complaints which were referred to the CRU. Out of these 58 had completed ESB Networks Complaints Process, while 31 had not. Of the 58 that went through the CRU Complaints Process 19 were upheld and 39 were not upheld.

METER READING

ESB Networks schedules four meter reading visits per customer per year. In 2019, out of our almost 2.4 million customers, ESB Networks managed to make four scheduled visits to 99.60% of customers, and 99.99% of customers received at least two such scheduled visits, compared to 99.64% and 99.99% respectively in 2018.

ESB Networks aims to obtain 1 actual meter read per year from 98% of all customers (either from Networks meter reading staff or from the customer themselves), and in 2019, the result achieved was 97.82% compared, to 97.80% in 2018. ESB Networks also has a target that 99% of customers will not receive back to back block estimates,

and in 2019 the result achieved was 99.94%, compared to 99.85% in 2018.

However, these visits may not always result in an actual meter reading being obtained due to, either our meter reading staff not being able to gain access to the meter, or a meter reading has not been submitted by the customer. Where we fail to gain access we leave a card for the customer to submit a reading. ESB Networks also sends a letter if a customer approaches 12 months without a reading. This can also be followed up with an email if we have a customer's email address. Cases where ESB Networks are not able to gain access to the meter, and no reading is received from the customer, are referred to as Long Term No Access (LTNA).

ESB Networks continues to endeavour to obtain as many meter readings as possible each year in line with the targets set out above and is utilising email campaigns, text campaigns, the visiting of holiday homes during summer months etc. in order to tackle the issue of LTNA. With regards to back-to-back block estimates, reasons for a customer receiving these can range from LTNA, to adverse weather impeding scheduled meter reading, or contractor illness.



02. RELIABILITY AND RESILIENCE

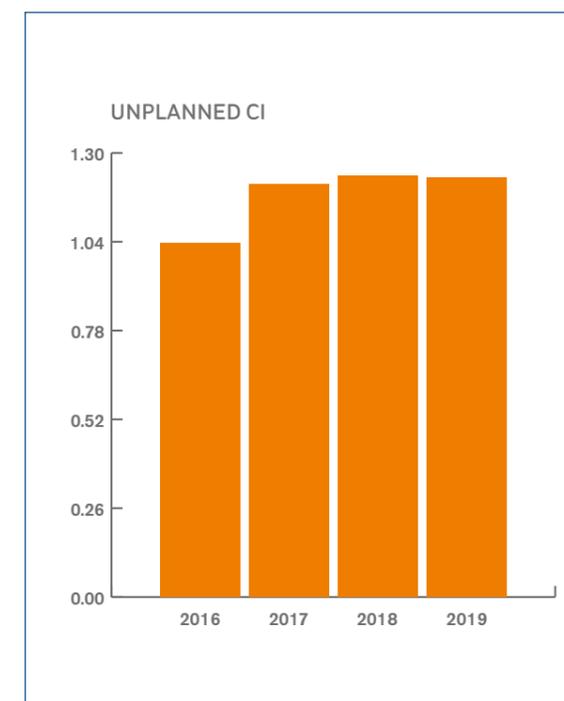
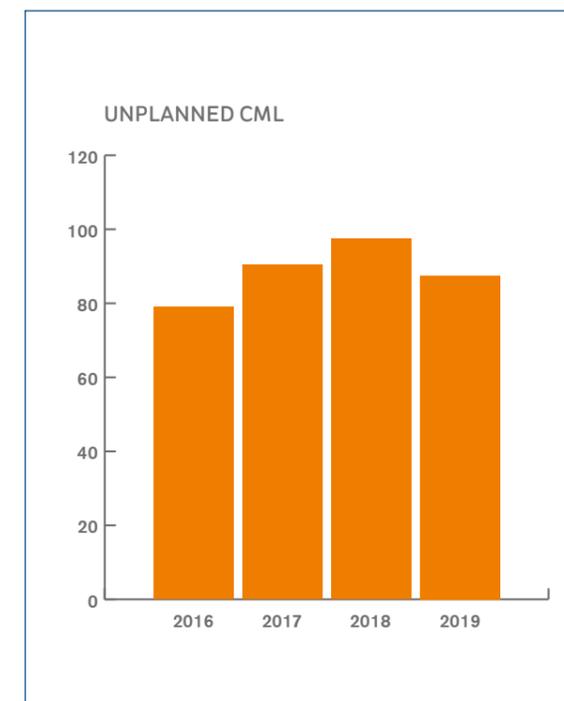
Ensuring our customers have access to a reliable and quality supply of electricity is crucial. We are committed to improving our network each year to ensure that we can continue to supply a reliable service to our customers.

Customer Interruptions (CI) represents the number of interruptions greater than 3 minutes that an electricity customer has on average each year, and Customer Minutes Lost (CML) is the duration that a customer on average spends without supply each year. To give a more reliable report of our outage performance, "storm days" (the effects of severe weather) are removed from our normal CI and CML reporting.

In 2019 we had 183.65 CML and 1.5 CI per customer as a result of both planned and unplanned outages, excluding storm related outages. This means that on average Irish electricity customers were without power for 183.65 minutes in 2019 as a result of non-storm unplanned and planned outages.

UNPLANNED OUTAGES

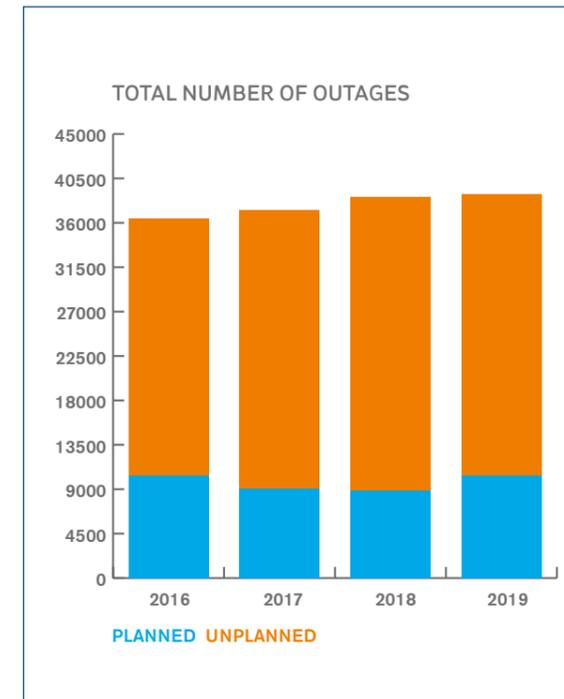
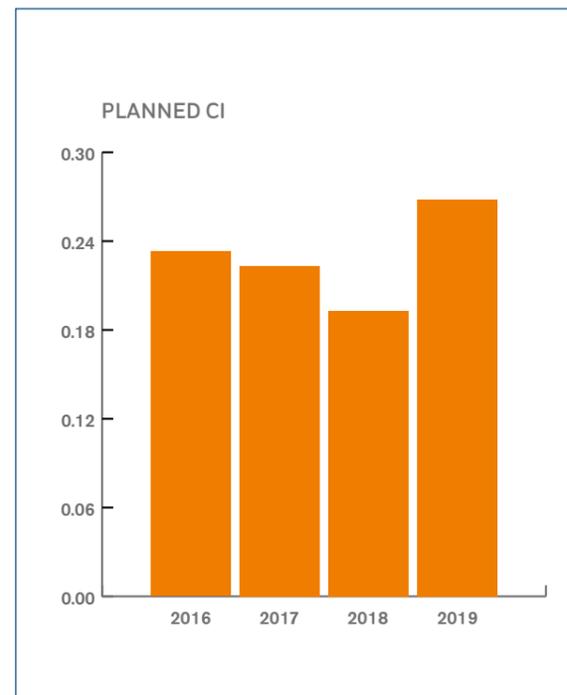
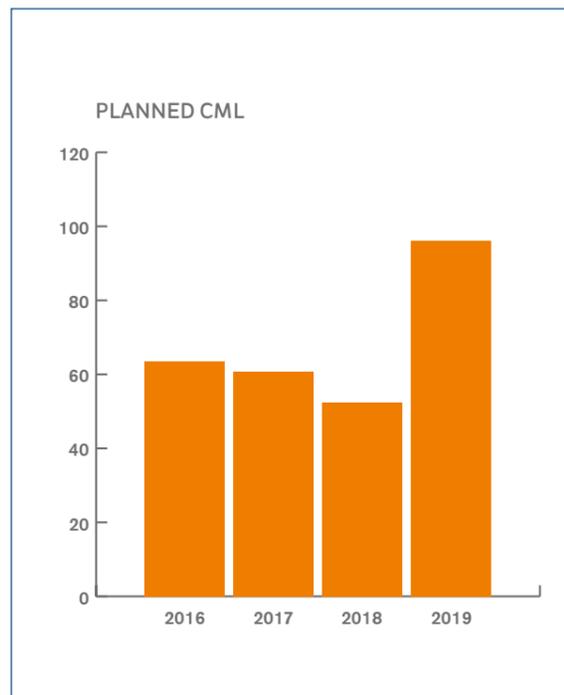
The CRU sets incentives targets for unplanned CML and CI (which exclude storms). In 2019 these targets were set at 77.2 CML per customer and 1.022 CI per customer. In 2019 our performance against these unplanned outage targets stood at 87.47 CML per customer and 1.23 CI per customer. You can find further details on our incentivised out-turns in the 'DSO Annual Financial Performance' section of this report.



	2016 Unplanned	2017 Unplanned	2018 Unplanned	2019 Unplanned
Metric	Actual ⁴	Actual ⁴	Target	Actual
CML	79.05	90.34	79.4	97.43
CI	1.04	1.21	1.04	1.23

⁴ There was no incentive target set by the CRU for 2016 and 2017

Every year ESB Networks also has to carry out planned works such as new connections, and maintenance, which result in planned outages to customers, these outages are notified to customers in advance.

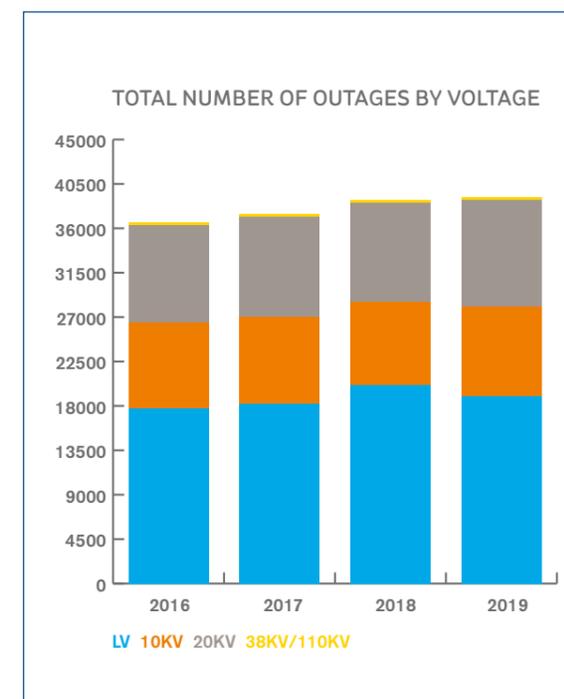


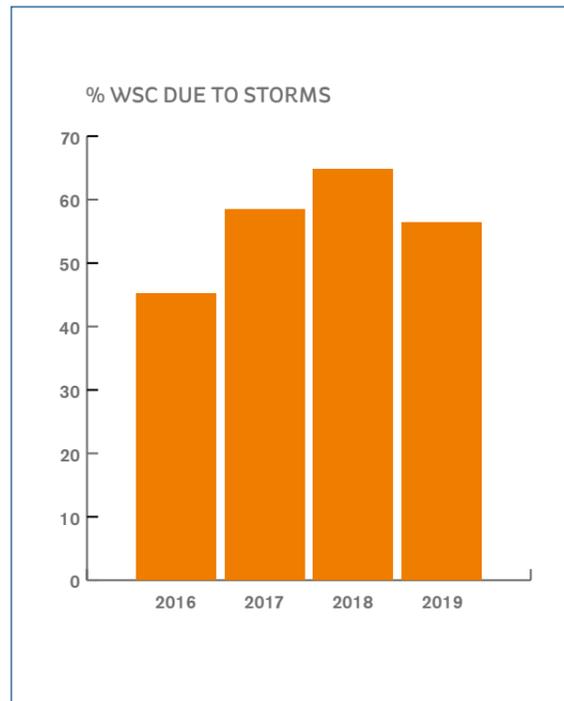
EXPLANATION FOR CHANGE IN OUTAGES

ESB Networks is witnessing changes to the climate, with increasingly volatile and harsh weather and the potential for consequent accelerated asset degradation and failure. In the Irish context, the consequent inclement weather conditions are occurring more frequently, and are occurring in a manner that is likely to present significant challenges to ESB Networks.

Increased wind speeds and more frequent storms are causing damage to the overhead network. Wind in particular creates network reliability challenges, as overhead network damage is caused by fallen trees, debris and branches. Climate change is leading to longer growing seasons, increased rainfall and rising temperatures all of which in aid vegetation growth. The majority of faults during wind storms are caused by fallen timber and associated debris. In more recent storms, the damage to overhead powerlines has been predominately caused by fallen trees.

In 2019 there were 19 storm days, compared to 14 storm days in 2018. The most extreme storm in 2019 being Storm Hanna on 26th April (red weather alert). The increasing frequency of weather events is shown below. The impact of climate change and associated weather events on our network continuity is evident from the increase in unplanned (fault) outages. ESB Networks is increasing its fleet of automated devices, remotely controlled switches, SMART sensing devices to mitigate impact of unplanned outages.





WORST SERVED CUSTOMERS

The worst served customer programme targets service improvement for customers who experience a large number of outages. Worst Served Customers (WSC) are customers who have had at least 15 outages over 3 years, and at least 5 outages in the most recent year. The consequence of more frequent severe weather events and their cumulative impact over time has resulted in more supply interruptions to rural customers and WSC. In 2019, 56% of worst served customer population was as a direct consequence of severe weather, compared to 65% in 2018.

Under the CRU 'Reporting and Incentives under Price Review 4' Decision (CER/18/087), the CRU has put in place an incentive mechanism to the value of €6.7m to address WSC numbers. ESB Networks will be incentivised to improve the reliability of 9,000 worst served customers by 20% over a three year period (2018-2020) and this improvement will be assessed in 2021.

ESB Networks is in the process of undertaking substantial WSC interventions at dispersed locations around the country. Many of these projects are challenging due to remote terrain and environmental considerations. In PR5 it is hoped to continue with an enhanced worst served customer investment programme for disadvantaged rural customers in order to reduce the volume of outages they experience.

NETWORK RENEWAL

HV SUBSTATIONS

To provide the best service to all of our customers, each substation's reliability is of utmost importance and therefore strategic replacement before failure is one of the keys to providing uninterrupted supply to our customers. In 2019 a full overhaul of Granby Row 38 kV station's MV switchgear and associated protection was completed. The MV switchgear in place here serves major commercial and urban hub in Dublin city centre. Replacing this switchgear with modern equipment removes the risk of unplanned failures which would have had a significant impact on customer continuity of supply, while also serving to reduce maintenance costs and resources required to maintain

assets in a safe and functional condition. Similarly, the 38 kV switchgear and associated protection systems in Kilbarry 110 kV station in Cork was replaced with modern gas insulated switchgear. A 38 kV transformer in Kilbarry was also replaced. Kilbarry, located on the northern outskirts of Cork city, serves ten 38 kV stations in Cork city and surrounding areas. Similar projects in East Wall Road, Bedford Row and Pembroke 38 kV Stations hit major milestones.

OVERHEAD NETWORK

With nearly 2.4 million customers and 2.3 million wooden poles supporting the overhead electricity network, we have almost one pole for each electricity customer in Ireland. Each day highly trained and skilled Network technicians climb these poles to operate and maintain the system, so the strength or "health" of these poles is of the utmost importance.

Capture of pole inventory data for the rural MV network had previously been completed in 2018, while 2019 saw almost 90% of the HV pole inventory captured by the end of Q2 2019. In total, over the two years data was collected for 1.2m HV and MV wood poles, including public exposure and condition for each pole. If upon assessment the pole condition does not meet set criteria the pole will be replaced immediately. Pole replacements are a necessary part of maintaining the network, as it minimises the risk of pole failure and maximises benefits for public safety, network performance and safety of ESB Network staff and contractors working on the network.

The data gathered for the MV Rural poles has been analysed and a pole replacement strategy and pole replacement programme developed to target the highest network risk. The planned pole replacement programme commenced in 2019 with a target completion date of Q4 2020. This programme plans to replace 15,000 of the highest risk poles on the network.

2019 also saw the delivery of two safety and continuity-focused programmes

- > Spring assist fuses, the 'spring assist' being a new element specified following a successful PR4 programme and becoming 'Business as Usual'. These fuses are now standard stock items and have vastly improved fault hinting and Network Technician safety
- > Triple Pole Switch (TPS) refurbishment programme. These switches have been subject to operational restrictions. 2019 saw the extension of this PR4 programme of 100 units to include all 'coastal' switches

UNDERGROUND NETWORK

Low Voltage (LV) minipillars are an integral asset and require continued life-cycle management. There are approximately 160,000 minipillars on the distribution system. ESB Networks carries out hazard patrols on approximately 40,000 of these every year. In 2018, we had developed a new software application to capture minipillar data from such inspections. Data from approximately 42,000 minipillars was inputted into this system in 2019, matching the 2018 figure. This enables ESB Networks to plan replacement or corrective maintenance on this significant asset base, with 459 minipillars being replaced in 2019, compared to 398 in 2018.

In our Medium Voltage (MV) network we continue to progress planned asset replacement programmes on our cast resin type MV unit substations. This MV unit substation asset population was deemed to require replacement in PR4. To replace these MV unit substations in urban environments is difficult, particularly where the space allowed for the existing substation is too small for our currently supplied standard MV unit substation. To ensure this important asset replacement programme progressed, ESB Networks secured several alternative MV unit substation types from our equipment suppliers.

These slimline substation design types have been successfully employed at sites where width, depth and height space can be limited. Overall in 2019, ESB Networks replaced 183 MV cast resin type unit substations, compared to 160 replaced in 2018.

2019 saw continued work being undertaken on our underground networks, with ongoing project management and design stage work, as well as project completions. Design stage work continued on 8.1 km of 38 kV Fluid Filled Cable (FFC) replacements in 2019. There was 0.55 km of FFC replacement works completed in 2019, compared to 0.9km being completed in 2018. At the 110 kV distribution level design stage work continued on 5.7km of FFC replacement in 2019.

There was also the replacement of 4 km of gas compression 110 kV cable that continued to be progressed through design stage in 2019. Finally, ESB Networks replaced 1.75 km of 10kV cable in 2019 due to a cable-degradation phenomenon known as water treeing (compared to 1 km being replaced for the same reason in 2018).

NETWORK RESILIENCE

Overhead line assets are vulnerable during adverse weather events, particularly where there are large trees growing within falling distance of the electricity network. ESB Networks carries out cyclical planned maintenance and timber clearing programmes to maintain the performance of the network and to ensure public safety. Without this cyclical programme timber would quickly encroach on the overhead power network and would result in increased outages for our customers. ESB Networks is working to optimise our timber-cutting programme to further improve network continuity during storm events, while also investigating network design to improve the storm resilience of our overhead network. While undertaking this work ESB Networks looks at the design of network to minimise impact of wildlife.

In order to further study how we can improve our Network resilience, in 2019 ESB Networks, in conjunction with the Electric Power Research Institute (EPRI), undertook a research study into the concept of 'hardening' the overhead network. Targeted actions to increase the resilience of overhead networks were identified, a number of which warranted further investigation for use by ESB Networks.

In 2019, ESB Networks began investigating a pilot programme of storm resilience improvements to be completed through targeted cutting, use of covered

conductor and potential undergrounding of network. ESB Networks identified a circuit out of Arigna in the North-West for this pilot. A detailed report detailing the mitigating work required (as defined by the programme criteria) was produced. Site works to complete this programme are due to be implemented in 2020.

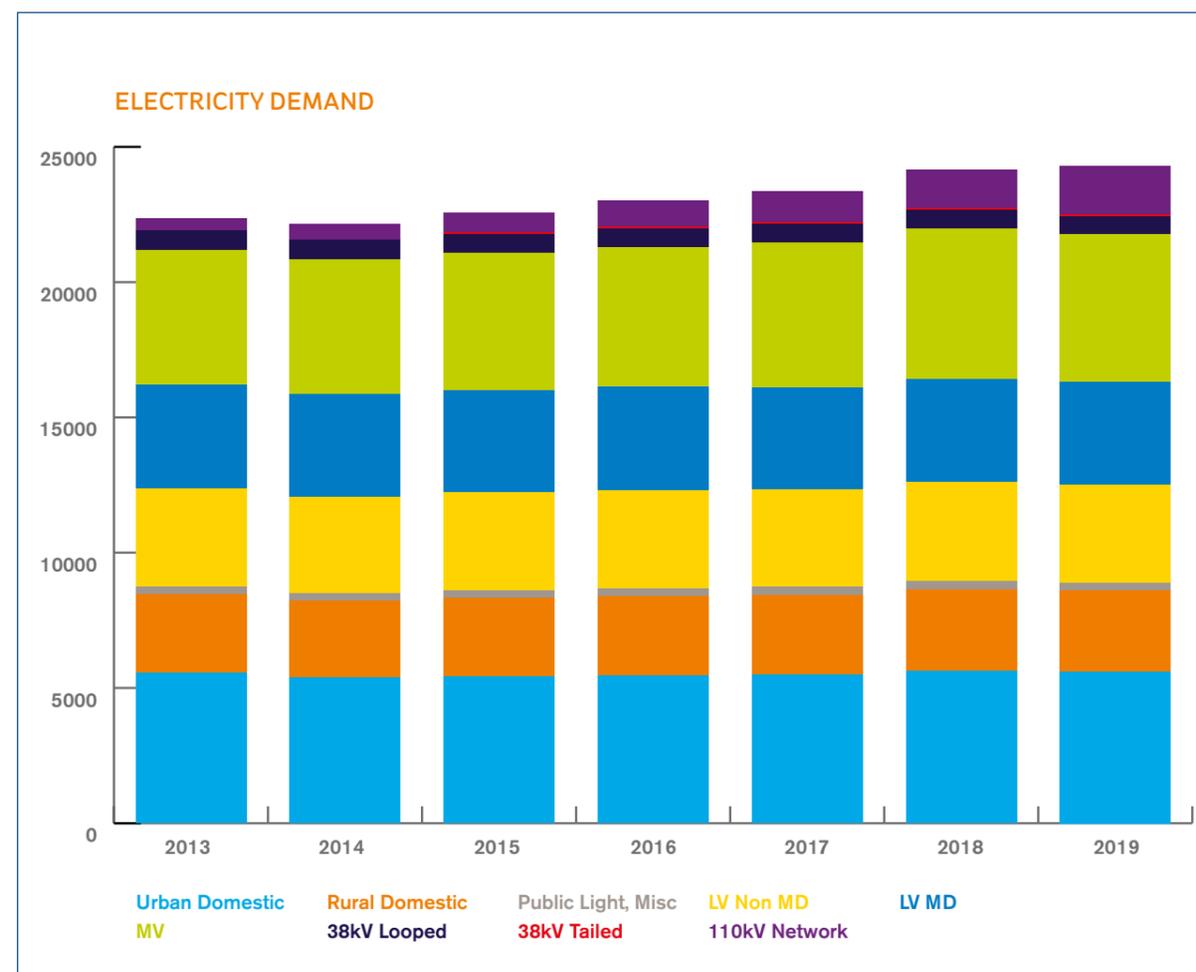
In 2019, ESB Networks developed Asset Health Indices models for 110kV Transformer, and MV Poles. The development and use of a full asset health index approach is part of ESB Networks' goal to pursue more easily communicated, objective, data driven methods to asset investment planning. A well-developed health index allows ESB Networks to enhance its decision making in relation to maintenance and asset replacement.

A number of key station projects to reduce risk and strengthen the resilience of the distribution network were completed in 2019. These included replacement of 110 kV transformer in Francis Street, replacement of 38 kV transformers in Dunmanway, Monstown, Ballygar, Kilmallock and Lismore HV stations and replacement of 10 kV switchgear in Monkstown.



03. NEW CONNECTIONS AND GROWTH

Efficient and economic connections are vital for our customers. We consistently strive to reduce the time from request to connection. Our focus is to enhance customer relationships through the design of a better experience, turning Common Field Service Challenges into Customer Engagement Opportunities, increasing efficiencies to reduce the time from application to connection and the proactive provision of timely information to our customers.



We saw continued growth in the domestic market in 2019 with an increase of 13% increase in the volume of completed new domestic connections on the previous year, and business connections increased by 6.5% on the previous year

Electricity demand on the distribution system continued to grow in 2019, continuing its year on year rise since its dip in 2014.

NEW CONNECTIONS

- > 30,206 total new connections, including
- > 25,427 domestic connections, consisting of 4,147 apartment connections, 13,232 housing scheme connections, and 8,048 single domestic connections. We also connected 4,779 commercial connections

That is a 12% increase in total new connections compared to the 26,954 we completed in 2018.

Domestic connections continued to rise in 2019. ESB Networks connected 15% more housing schemes and 15% more single dwellings than we forecasted in our PR4 plans.

	2016	2017	2018	2019
Connection points terminated	18,601	16,042	13,215	14,303
Connection points de-energised	7,312	4,827	5,054	5,267

Terminated: This includes connection points in vacant premises that have been terminated following previous de-energisation and de-registration, it also includes MPRN's associated with housing scheme quotations that have not progressed

De-energised: for non-payment only

RENEWABLES CONNECTIONS

New generators and storage technologies need to connect to the electricity grid in order to participate in energy markets. The processes for connecting these are technically and commercially complex. In 2018, the CRU decided on the first step in revising the previous 'Gate' connection policy. They allowed the first of a set of more regular batches of connection offers with 'shovel ready' projects (i.e. with planning permission) getting connection offers ahead of less mature projects. This approach is known as the Enduring Connection Policy and the ECP-1 represents the first stage in this approach.

ESB Networks issued 51 ECP-1 connection offers in 2019 totalling 437 MW. These offers comprised a broad range of technologies including Wind, Solar, Battery and CHP projects. This was the first time the DSO issued Battery Storage connection offers totalling 197MW to 11 projects. The remaining ECP-1 connection offers will be issued to generator customers by May-2020 in advance of the first RESS Auction.

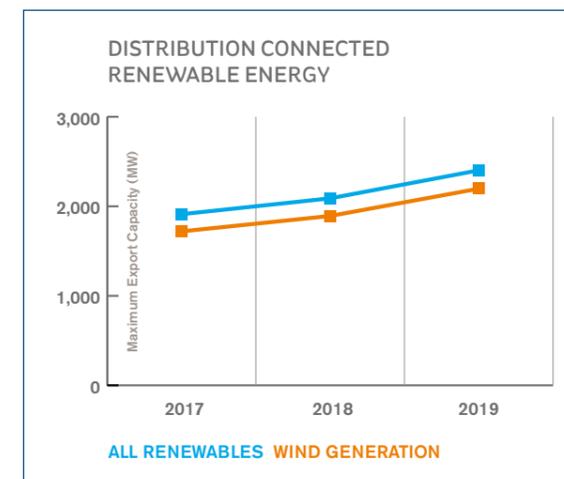
ECP-1 Connection Offers issued in 2019

Technology	Connection Offers	MW
Wind	14	130
Solar	23	109
Battery	11	187
CHP	2	9
Biomass	1	2
Total	51	437

In 2019 a total of 550 MW of renewable energy generation capacity was installed onto the Irish electricity system (542 MW of wind and 8 MW of other renewables), bringing the total volume of renewables connected to the system to 4.6 GW of which over 4.19 GW is wind.

Specifically in terms of the Distribution system, ESB Networks connected 28 separate generation projects to the network in 2019, adding a total of 313 MW (305 MW wind). At the end of 2019 a total of 2,402 MW of renewable energy capacity (2,197 MW of wind) was connected to the ESB Networks Distribution System.

Significantly, 2019 represented a doubling of the annual new generation capacity connected to the Distribution System when compared to 2018. The 2019 generation out-turn emphasises ESB Networks' continued commitment, capacity and capability to meet renewable generation customer connection programmes, in particular REFIT deadlines. ESB Networks is proud of its role and fully understands its duty and responsibility to play a continued leading role in enabling Ireland's transition to a low carbon energy future powered by clean electricity.



MICROGENERATION

In 2007, the CRU published "Arrangements for Microgeneration" (CER/07/208) which outlines technical and commercial arrangements for microgeneration including installation, safety and notifications to ESB Networks. As per CER/07/208, microgeneration is defined as a source of electrical energy and all associated equipment, rated up to and including 6kW (single phase connection) and 11kW (three phase connection).

We processed microgeneration notifications to the value 11.7MW for single phase in 2019 which is 73.6% more than the 6.74MW recorded in 2018.

NETWORK REINFORCEMENT

Continued network reinforcement is of vital importance to the distribution system. ESB Networks has delivered and will continue to deliver large HV projects that facilitate economic growth, provide new connections and improve security of supply for customers.

Important projects to improve resilience, increase capacity and strengthen the network were completed in 2019 as follows:

- > Finglas 110 kV station redevelopment which saw two 110/38 kV transformers transferred from old outdoor busbar to new 110 kV GIS switchboard
- > Ardnagappary: Energisation of new 110 kV Station to facilitate IPP connections (consists of 31.5 MVA transformer and 38 kV GIS)
- > Binbane: Energisation of new 63 MVA transformer and 38 kV GIS in existing 110 kV Station to facilitate IPP connections
- > Tawnamore: Energisation of new 31.5 MVA 110 kV transformer in existing 110 kV station to facilitate IPP connections
- > Glenree: Energisation of new 20 MVA 110 kV transformer in existing 110 kV station to facilitate IPP connection
- > Commissioning and energisation of IPP built 110/38 kV stations at Booltiagh and Coomataggart. In addition to facilitating IPP connections, these new substations also serve to reinforce the local 38 kV network

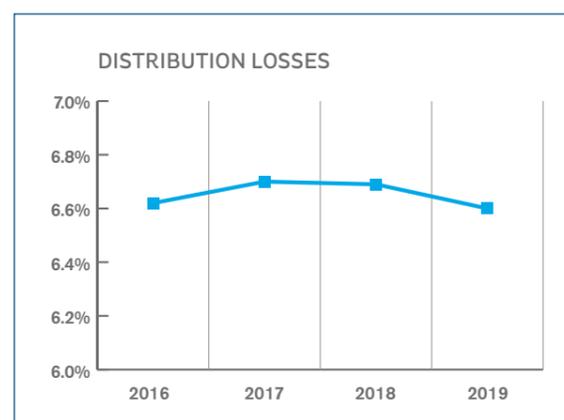
Net Increase in 110 kV and 38 kV Transformer capacity:

Year	110 kV MVA	38 kV MVA	Total
2016	344.5	55	399.5
2017	209	110	319
2018	177.5	75	252.5
2019	303.5	34	337.5

In 2019 337.5 MVA of transformer capacity added to the distribution system, compared to 252 MVA in 2018.

DISTRIBUTION LOSSES

Electricity losses are inherent losses within an electrical system. In 2019, approximately 6.6% of the energy that was put into the distribution system was accounted for as losses, compared to 6.69% in 2018, while 2017 and 2016 saw losses of 6.70% and 6.62% respectively.



Losses are comprised of 'technical' and 'non-technical' losses. Technical losses are heat losses arising from the passage of electricity through lines, cables and transformers. Technical losses depend on the volume of electricity flowing in the system and the characteristics of the lines cables and transformers. Non-technical losses on the other hand are electricity units which are unaccounted for, for example as a result of theft arising from unauthorised connections.

It is believed that these commercial losses represent approximately 0.5% of the electricity entering the electricity system in 2019.

Factors that affect the % of electricity lost include:

THE PROPORTION OF ELECTRICITY THAT IS DISTRIBUTED AT THE VARIOUS VOLTAGE LEVELS

- > Electricity distributed to customers connect at higher voltages incurs less system losses than electricity connected at lower voltages. In recent years, the addition of data centres connected at 110kV has caused a reduction in losses as a % of GWh distributed

UTILISATION OF ASSETS

- > If the loading of transformers, lines and cables increases losses will also increase. As networks are naturally reinforced, this will normally result in a reduction in losses

OPERATING VOLTAGE OF LINES AND CABLES

- > The higher the operating voltage of lines and cables the lower the losses for a given electricity throughput.

GENERATOR CONNECTION

- > As more generation is connected to the distribution network there is an impact on losses. There are additional losses on the connecting lines and cables to wind farms and other large generation sites. Some losses may be avoided due to supply of electricity locally displacing electricity supplied via the transmission system particularly for generation connected at low voltage e.g. Photo voltaic generation

UN-AUTHORISED CONNECTIONS / METERING TAMPERING ETC.

- > The propensity for unauthorised connections and meter tampering in the customer base and the effectiveness of measures to reduce it



04. ENVIRONMENT

ESB Networks operates an Environmental Management System (EMS) which is externally certified to ISO 14001 Standard. The EMS provides a framework for the operational control of risk, performance management and continuous improvement and is independently audited against the ISO14001 standard each year.

ESB Networks had a full re-certification audit for ISO 14001 during 2019 and we successfully retained this certification.

WASTE MANAGEMENT

ESB Networks is committed to becoming a leading company in the area of sustainability. The effective management of waste is seen as a key environmental management objective in supporting this strategy. In 2019 ESB Networks diverted 98% of its waste/retired materials from landfill, matching its 2018 achievement.

MANAGING ENVIRONMENTAL FOOTPRINT

BUSINESS CARBON FOOTPRINT

Compared to 2018, electricity usage in our buildings was down 6%, and vehicle fleet fuel consumption was lower by 3%. Operating conditions in 2018 had been affected by a period of significant cold weather in February and March and the subsequent impacts of storms which caused widespread snow.

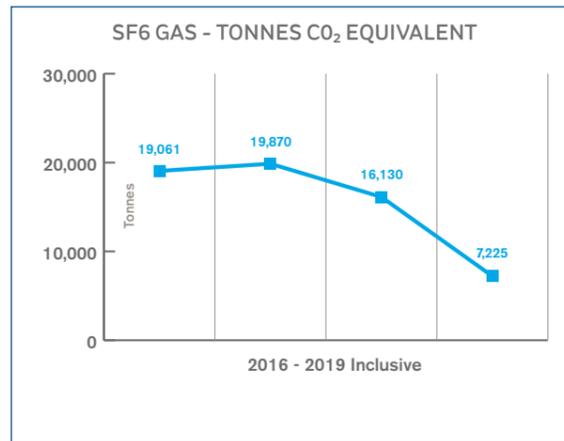
The Met Éireann Summary Report for 2019 noted that temperature and rainfall conditions were above average at almost all monitoring locations. The 3% reduction in vehicle fleet fuel consumption from 2018 to 2019 is attributable to older less efficient vehicles being removed from the fleet and replaced with newer more efficient vehicles, and an expansion of our electric vehicle fleet.

SF6 GAS LEAKAGE

Sulphur hexafluoride (SF₆) is used in most of ESB Networks' high-voltage switch gear on the Transmission and Distribution networks. It is used because of its very high electrical insulating properties and allows the switch gear to work efficiently and safely. In 2019, approximately 316.9kg of sulphur hexafluoride (SF₆) was emitted due to equipment faults on distribution and transmission switchgear, of which 37,34kg related to distribution switchgear.

Overall emissions from both distribution and transmission switchgear represented 0.18% of the total inventory of SF₆ employed (versus 0.32% in 2018). The objective is to maintain leak rates at less than 0.5% per annum. There has been a trend of leakage reduction, as we replace and repair our older switch gear. This is included in the national SF₆ emission figure submitted by ESB Networks to the Environmental Protection Agency (EPA) annually.

Description	2016 Tonnes CO ₂	2017 Tonnes CO ₂	2018 Tonnes CO ₂	2019 Tonnes CO ₂	2019 v 2018 Tonnes CO ₂ - (%)
Vehicle Fleet	12,796	13,517	13,526	13,088	-3.20%
Building Emissions – Heating Gas	250	215	166	292	76.0%
Indirect Emissions – Electricity	6,854	7,374	7,240	5,380	-19.50
Waste	196	229	254	256	0.90%



FLUID FILLED CABLES LEAKAGE

In 2019 ESB Networks repaired six leaks from underground Distribution fluid-filled cables. You will find details on our repairs on our website <https://www.esbnetworks.ie/acting-responsibly/environmental-information>

In February 2019, a number of environmental issues were raised by a staff member as part of a Protected Disclosure made to the Minister. These disclosures were the subject of an Oireachtas Joint Committee on Communications, Climate Action and Environment hearing.

Some of the issues raised by the Protected Disclosure were already being dealt with as part of ESB Networks' risk-based programme for environmental issues. Action plans have been put in place and ESB Networks is engaging with the relevant statutory authorities with regard to the specific issues raised in the Protected Disclosure.

MANAGING THE ENVIRONMENT DURING CONSTRUCTION

ESB Networks has adapted to the increasingly challenging environment of project planning and consenting while maintaining a focus on timely and cost-effective delivery of projects. At a planning stage, multi-disciplinary technical teams work to develop construction methodologies appropriate to the receiving environment. We ensure these – and any additional requirements of consents, are reflected in construction documents provided to external contractors who are increasingly important to project delivery through EPC contracts. We inform on-site works through document review processes (e.g. inputs to Construction Environment Management Plans, Traffic Management Plans, Waste Management Plans, etc.). We support construction teams on site providing oversight through appointment of specialists – such as Project Ecologists, Ecological Clerks of Works, Project Archaeologists etc. and capture feedback through site audits. Within ESB Networks significant resources have been put in place to support these efforts. All of these inputs happen in the context of the company-wide Environmental Management System (EMS) – and are key tools in promoting environmental protection.

FACILITATING A LOW-CARBON FUTURE CLIMATE ACTION PLAN

In 2019, the Irish government laid out in the Climate Action Plan (CAP) Ireland's strategy to meet its 2030 climate and energy targets. The CAP covers all major sectors including Electricity, Transport, Built Environment, Industry and Agriculture. Building on the sustained commitment made to decarbonising electricity generation in Ireland over the past two decades, the CAP, by 2030, sets out a target of 70% renewable electricity, and the decarbonisation of the heat and transport sectors through electrification. ESB Networks strongly supports the objectives of the CAP and recognises our role in its successful delivery and are fully committed to enabling the delivery of Ireland's energy targets. We are committed to playing a leading role in enabling Ireland's transition to a low carbon energy future, powered by clean electricity, by connecting renewable generation and supporting the electrification of heat and transport.

ESB Networks successfully met all of its CAP actions in 2019. We were the lead for eight action steps, and key stakeholders for a further seven. Actions completed in 2019 included:

- > Engaging with vulnerable customers and promoting network services available during severe weather events (associated with action 175)
- > Technical assessment of the impacts of increasing levels of distributed generation on the distribution network (associated with action 30)
- > Review of domestic connection LV design standards (associated with action 174)

As a result of the LV design standard review linked with action 174, ESB Networks have increased the ADMD (After Diversity Maximum Demand) used when designing new connections for houses from 2.5kVA up to 5.5kVA, with 3.5kVA for apartments. This significantly increases the capacity for all new domestic connections to facilitate the electrification of heat and transport.



THE DINGLE PROJECT

ESB Networks is planning for the future in terms of how we are going to support Ireland in transitioning to a low carbon energy system. The low carbon economy will drive an increase in renewable electricity, energy efficiency and electrification of heat and transport. Our flagship Dingle Project aims to trial a number of technologies to help ESB Networks understand the impact of these technologies on the low voltage and medium voltage networks so that we can continue to meet our customers' changing needs for the low carbon transition, while providing a reliable electricity infrastructure.

During 2019, the Dingle Project selected five community ambassadors to act as advocates of active energy citizen behaviours. Throughout the year the project commenced the deployment of DER (distributed energy resource) technologies in the ambassadors' premises. For three of the ambassadors, a deep retrofit programme was initiated together with the installation of air source heat pumps. Other technologies will be installed during 2020.

In addition, across the peninsula, the Dingle Project installed Solar PV on another 20 premises. This installation was in preparation for technical trials due to commence during 2020 which will focus on flexibility and peer-to-peer energy. In total the 25 sets of Solar PV panels produced 29,457 kWh (29.5 MWh) of energy, which, if displacing energy produced from fossil fuel sources, would have avoided 7,860 kg or 7.86 tons of CO₂ (based on carbon intensity of 266.82 g CO₂/kWh. Average calculated on the past 30 days of data).

During 2019, engagement with the people of Dingle highlighted that the community is really focused on becoming a low carbon environment and doing what it can to protect the environment into the future. An example of this community commitment was in the take-up of the LED-bulb exchange with 300 bulbs swapped out during the April event.

In addition, throughout 2019, 10 Dingle citizens completed the Energy Mentor programme delivered by Kerry College positioning them to share information across the community on how householders can make their properties more sustainable and energy efficient.

On top of this, ESB Networks installed LV Vision devices on the network to assist in monitoring the impact of additional low carbon technologies on our network. These devices have been installed in locations where Solar PV, Battery Systems, and Air Source Heat Pumps have been installed.



05. SAFETY

Within ESB Networks, safety, health and well-being is at the centre of everything we do. We are committed to protecting the safety, health and well-being of our employees, contractors, customers, members of the public and others who may be affected by our work activities.

EXTERNAL VALIDATION OF SAFETY MANAGEMENT SYSTEM

Throughout 2019, ESB Networks continued to further improve and develop our capability and performance levels in Safety, Health and Well-being including the implementation of our 'Safe and Sound' safety culture transformation programme. We successfully retained OHSAS 18001:2007 accreditation with independent validation of the effectiveness of our continuous improvement approach to safety, health and well-being.

SAFETY, HEALTH AND ENVIRONMENT STRATEGY

Work was completed on the development of the new ESB Networks Safety Strategy as part of the overall ESB Group Safety, Health and Environment Strategy (2020 – 2025). It is based on the five fundamental building blocks of Safe People- Safe Workplace- Safe Tools / Equipment / Vehicles - Safe Systems of Work- Safe Behaviours

PILLAR 1: NETWORKS WORK PROGRAMME

NETWORKS WORK PROGRAMMES AND CRITICAL SAFETY PROCESSES

The delivery of our public safety work programmes including cyclical hazard patrols and maintenance of overhead and underground networks, and timber cutting continued to be prioritised to ensure public safety. The delivery of these programmes is monitored and reviewed regularly to ensure delivery within agreed cycles. Our incident recording system recorded and actioned all public safety incidents and provided important information that led to focussed public safety initiatives and campaign targeting key 'at risk' groups. The internal staff monthly safety briefing which is communicated to all staff in ESB Networks provided information on significant public safety incidents to

emphasise the importance of public safety and recognise the contribution of staff and contractors in keeping the public safe. The briefing was further improved with the use of video content to more effectively communicate significant public safety incidents to staff and to continually reinforce the prioritisation of public safety actions. We continued to implement critical public safety interventions by serving 'stop work notices' where we became aware of unsafe construction work near electricity networks. As part of our emergency response, where we are notified of low or fallen electricity wires, we continued to implement the remote disconnection of the electricity network, where appropriate, to safeguard the public and first. The 'dial before you dig' service provided maps of the overhead and electricity networks to construction companies to support compliance with H.S.A. Codes of Practice in relation to electricity.

PILLAR 2: STAKEHOLDER EDUCATION AND AWARENESS

STAKEHOLDER EDUCATION AND AWARENESS

In 2019 ESB Networks continued to implement the Public safety Strategy and Action Plan (2017 – 2020), including engagement initiatives across the farm, construction, leisure and DIY sectors.

Our 'Safe Family Farms' partnership with the Irish Farmers Journal continued into its fifth year, with further additions to the library of general farm safety videos as well as the regular safety pages and full-page public safety advertorials to raise awareness of electrical safety on farms. We also participated in the 3-day National Ploughing Event and Tullamore Show where we engaged with large numbers of the public in relation to electricity safety. We delivered safety talks to the Teagasc colleges as part of the FBD 'Champions for Change' initiative, in association with the H.S.A.

A revised and updated Code of Practice for Overhead Electricity Lines was completed in consultation with the H.S.A. and was approved by their Board and published in 2019. A supporting video and other content, including a new 'Safe Construction with Electricity' information booklet was developed to support the briefing of construction companies

and Local Authorities. ESB Networks actively participated in the CIF-led Construction Safety Partnership Advisory Committee including the development of guidance for the location and identification of underground services. Our partnership with CIF resulted in a strong focus on electricity for Construction Safety Week with electricity recognised and promoted as one of the five key construction risks. This was supported by our partners in the ESB Networks-led 'Joint Utility Forum', including Gas Networks Ireland, Irish Water and Eir. Additionally, ESB Networks delivered safety talks to individual construction companies as part of their Safety Week programme of events.

The H.S.A.-led 'Keep Safe' programme for primary schools continued with ESB Networks delivering interactive sessions involving over 1,000 pupils.

ESB Networks launched its Strategic Stakeholder Engagement Framework and 2019 Action Plan in recognition of the value we place on working collaboratively with all our customers and stakeholders.

ESB Networks participated in the An Garda Síochána - led 'Metal Theft Forum' which met during the year to share information and co-ordinate responses to the continuing trend of break-ins and metal theft. This impacted ESB Networks with interference and theft of critical electricity equipment with significant implications for public safety. Our staff continued to provide an excellent emergency response service in all situations, including major storms, emergency calls from the public and from other emergency services.

PILLAR 3: PUBLIC EDUCATION AND AWARENESS

Our partnerships with the Irish Farmers Journal, the Farm Contractor bodies and with CIF resulted in the publication of a regular series of electricity safety articles in their publications and across their digital and social media channels which covered both overhead high-reach risks and underground cable dig-in risks.

During construction safety week, ESB Networks delivered a live webinar to CIF members on the updated Code of Practice.

The Secondary Schools programme continued with winners selected in the National Safety Challenge' for Agriculture Safety in conjunction with the Irish Farmers Journal who featured the finalists in their publications.

We also issued a number of press releases on topics covering transporting of high loads, election posters and working near electricity wires which resulted in opportunities to engage with large audiences through both national and local radio.

Our Public Safety Advertising Campaigns – "Are You Sure It's Safe?" and "Stay Safe, Stay Clear" - continued throughout 2019 to inform the public of the need to be aware of the dangers of electricity. The campaign targeted those at increased risk of coming into contact with the electricity network, including farmers, construction workers, children, leisure pursuits and the general public.

Awareness figures for the TV campaign reached 82%, compared with 87% in 2018, which is still considered very strong when compared with other campaigns and given the campaign was launched in 2015. Radio safety messaging with our weather sponsorship on RTE Radio 1 was particularly significant throughout the year and highlighted the dangers of electricity when carrying out farming, construction, leisure and gardening activities.

The public safety section of the ESB Networks website was updated with new content and resources to inform and educate the general public, construction, farm and leisure

sectors of the risks associated with the electricity networks. These are accessible at www.esbnetworks.ie/education.

All our public safety communications reminded the public to contact the ESB Networks emergency number where they become aware of a dangerous situation or loss of electricity supply. This number is also visible to the public on all our assets, equipment and vehicles. A recent Com Reg decision means that the emergency number is changing to become an 1800 Freefone number. This will require a change in the long-standing 1850 372 999 emergency number to the new 1800 372 999 number with the need to inform and educate the public, given its critical importance for public safety.

PILLAR 4: STAFF EDUCATION AND AWARENESS

2019 saw continued improvements in the levels of staff engagement and communication of key safety messages. The reporting of 'good catches' among staff has continued to rise year-on-year with a total of 4,930 recorded, up 7.5% on 2018. We recorded 39 Lost time injuries to our staff and contractors, a reduction of one from 2018. Analysis of the causes of these identified the major causes as slips/trips/falls, driving for work and manual handling. Information on the learnings from the investigations and the causes of these injuries were communicated to staff via the Monthly Safety Briefing, Safety and Text Alerts.

The ESB Road Safety Bureau undertook a series of road safety improvement programmes and initiatives in the following areas: communications of key risks and controls associated with driving at known risk periods, stakeholder engagements, and 'safe driver' behaviour recognition awards.

STORMS AND EMERGENCY RESPONSE

During 2019, storms resulted in significant interruptions to the electricity supply and damage to the overhead electricity networks. During these times of emergency response, the safety and well-being of our staff and customers was our primary concern with daily morning safety briefings for front line staff, and a text alert system pushing key safety information out to field staff. Tailored briefings were provided for all contact centre staff.

Our TV and radio public safety media campaign, including the sponsored time on RTE Radio 1 Weather, social media, and search advertising delivered critical public safety messages.

SAFETY, CULTURE AND LEADERSHIP PROGRAMME – "SAFE AND SOUND"

The safety culture transformation programme, Safe and Sound, continued to deliver improvements during 2019. The objective of Safe and Sound is to build a world class safety culture that is sustainable over time and to embed a values-based culture where safety, health and well-being is central to everything we do. During 2019, the programme was implemented across all areas of ESB Networks including: putting in place enduring structures and processes, establishing of Safe and Sound Leadership teams across the business, supported by a team of internal coaches, to support and lead the implementation at a local level and deliver solutions. Safe and Sound workshops were rolled out to all staff in ESB Networks to improve understanding of the Safe and Sound principles and what Safe and Sound is all about. This was further supported with a Manager and Supervisor development programme to increase the numbers of local Safe and Sound champions.

INDEPENDENT ASSURANCE AUDITING

The Competence and Assurance team continued to provide independent auditing assurance to the Networks business. Their focus in 2019 centred around construction standards, compliance inspections, operator knowledge assessments, behavioural assessments and safety management system inspections. All auditing engagements were conducted in a coaching-style and have resulted in steady improvements in safety and quality performance and compliance.

NUMBER OF DANGEROUS OCCURRENCES/ THIRD-PARTY DAMAGE

	2016	2017	2018	2019
3rd Party plant damages (excluding underground cable dig-ins)	1,086	1,244	1,403	2,637
3rd Party plant damages caused by underground cable dig-ins	994	715	1,131	1,035
Non 3rd party - MV and 38kV notifiable fault incidents (line drops and reduced clearances)	183	277	277	263
Non 3rd party - LV notifiable fault incidents (line drops and reduced clearances)	969	1,214	1,270	948

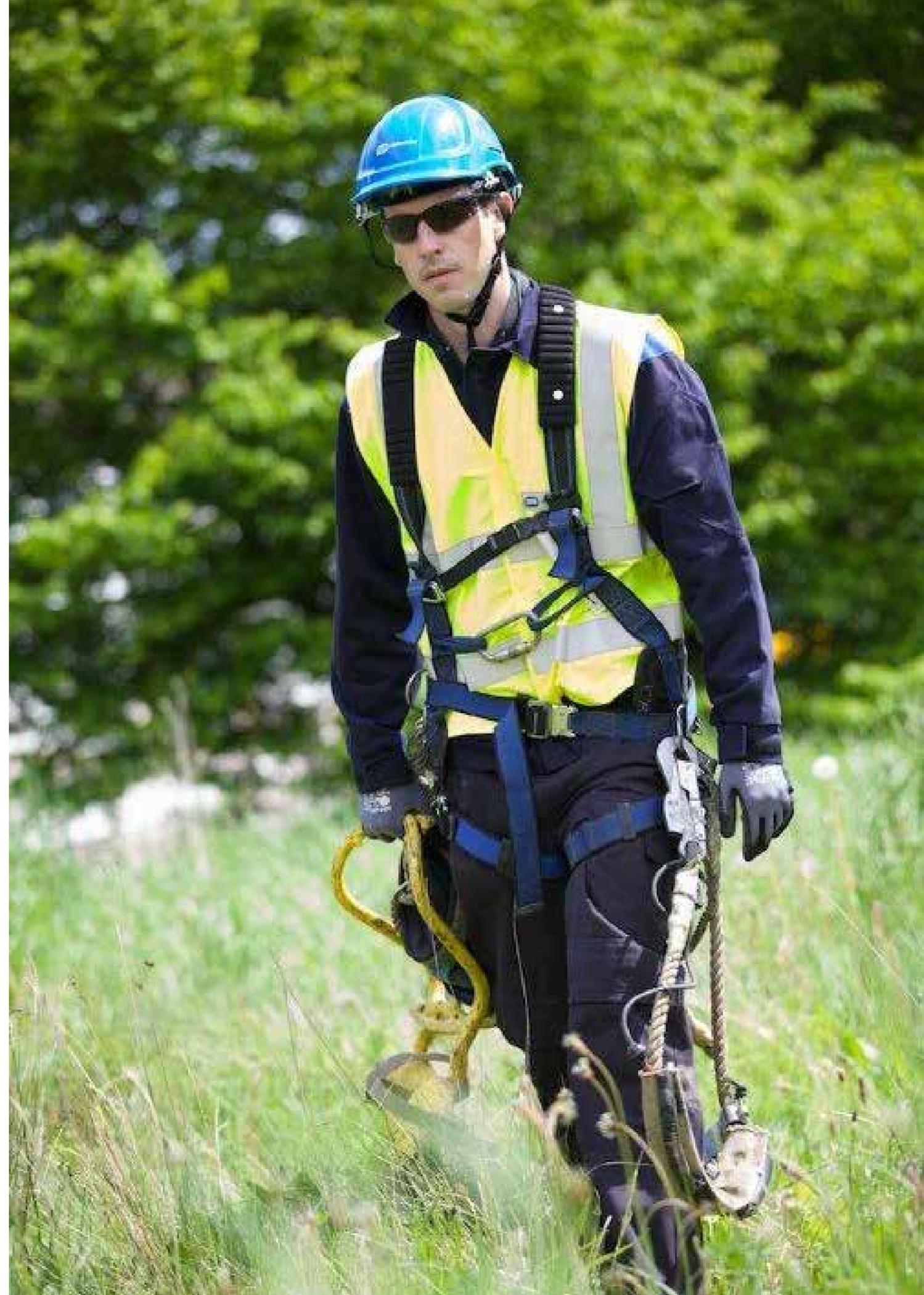
Notes on table: Third party damage incidents (excluding underground cable dig-ins) increased significantly from 2018 to 2019, due to incidents involving the overhead networks and timber

BREAK-INS AND METAL THEFT

2019 saw a rise in the number of break-in and metal theft incidents. There were 45 break-ins at ESB Networks stations where damage occurred to ESB Networks property and/or contractor property, and in 35 of these incidents theft of property occurred. This compares to 17 break-ins in 2018, of which 9 included theft of property.

There were no incidents of damage to or theft of overhead lines in 2019, compared to 2018 which had seen 6 incidents, of which 4 had resulted in theft of copper.

These break-ins and metal theft incidents pose a serious risk to life.



06. DSO ANNUAL FINANCIAL PERFORMANCE

Every 5 years the CRU determines the revenue price control, which sets out the amount of Distribution Use of System (DUoS) revenues that ESB Networks can recover through tariffs from the DUoS customers. These revenues are utilised for safely operating, maintaining, and improving the distribution network.

2019 was the fourth year of the current Price Review (PR4) which runs from 2016 to 2020. The Price Review is a robust process where all capital and operating costs are assessed and benchmarked against peer utility companies. This ensures that costs are efficiently and effectively managed so that the customer receives the maximum value for money.

The Price Review process facilitates annual adjustments to these revenues using the K-factor mechanism for reasons such as updated forecasts, inflation, incentive out-turns, additional unforeseen items (e.g. storms) and updates due to potential under or over recoveries. If there is an over-recovery, meaning that the amount recovered was more than required, this is deducted from the following year's revenue allowance. Likewise, if there is an under-recovery this is added to the next year's revenue allowance via the K-factor. The CRU approved 2019 calendar year DUoS revenues of €827.5m. You can read more on the Distribution Network Allowed Revenue 2019 in the CRU's decision paper 'Electricity Distribution Network Allowed Revenue 2019, Distribution Tariffs 2018/2019 and Distribution Loss Adjustment Factors'

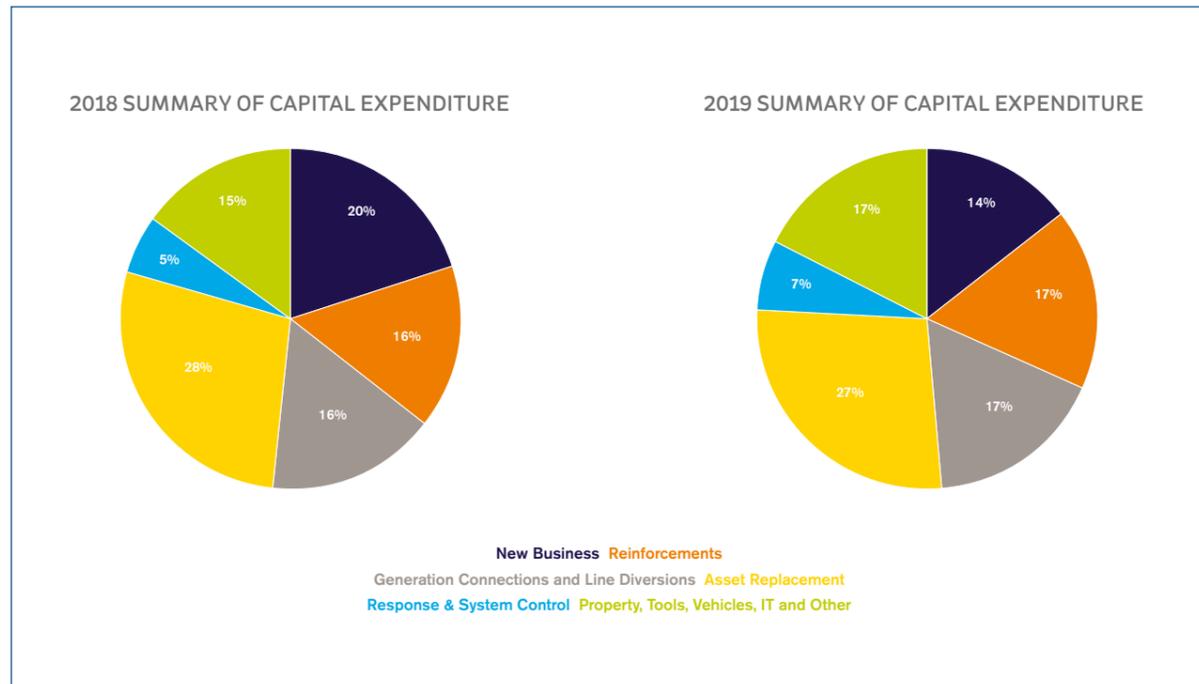
The portion of our allowances we spend each year varies upwards and downwards, depending on our planned work programme for the year. In 2019, ESB Networks invested €267 million of capital expenditure in the development and renewal of the distribution network (2018:€246) and incurred €294 million of operating expenditure (2018:€282).

This means that by the end of 2019 we had spent a cumulative 69% of our allowed PR4 capital expenditure allowances on investment in developing and renewing the system, compared to the cumulative 48% by the end of 2018. DUoS tariffs are the proportion of a unit of electricity which pay for distribution system development and

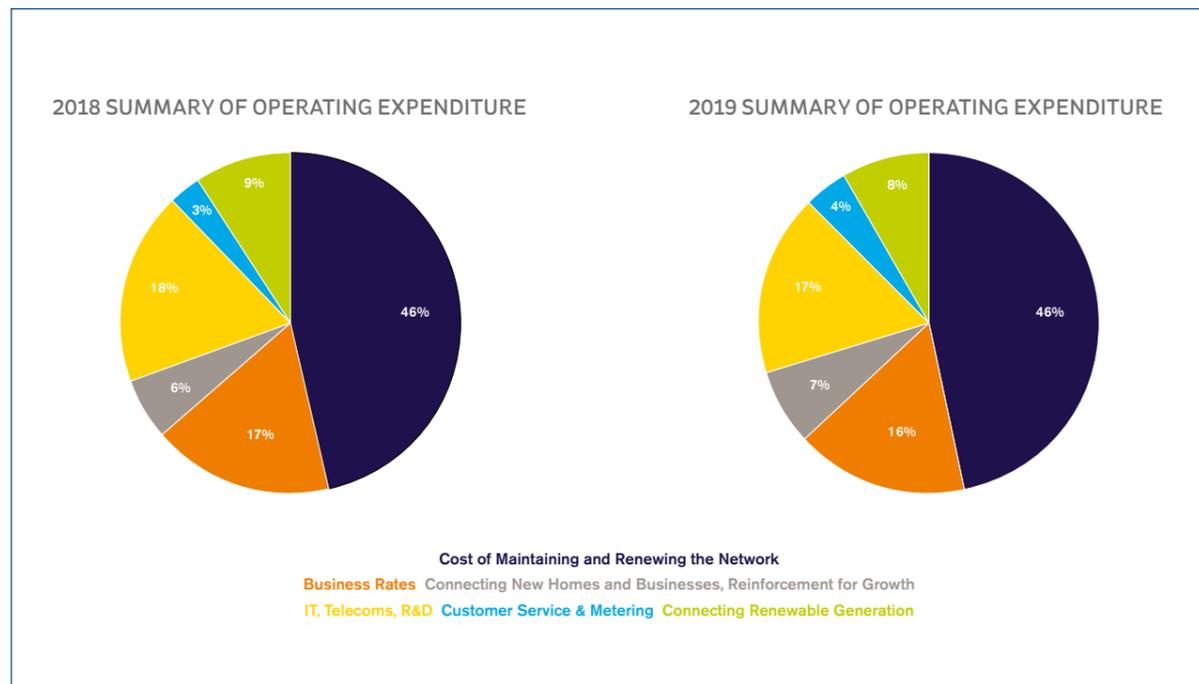
operation. These tariffs are updated in October each year, based on changes in demand, inflation and other decisions made by the CRU. In October 2019 the DUoS average unit price (AUP) decreased by 0.59% compared to October 2018. ESB Networks are committed to delivering on price for Irish electricity customers while investing in a safe, reliable network and leading the transition to a low carbon future.

INCENTIVES OUT-TURN

The CRU updated the incentives arrangements for ESB Networks in 2018 in the 'Reporting and Incentives under Price Review 4' decision (CER/18/087). This document sets out areas in which ESB Networks is either rewarded or penalised based on our performance. The below table shows ESB Networks' performance against these incentives for 2019. More information on this can be found in the CRU's 'Electricity Distribution Network Allowed Revenue 2020, Distribution Tariffs 2019/2020 and Distribution Loss Adjustment Factors' Information Paper (CRU/19/102).



⁵ Capital expenditure figures are stated net of customer contributions



Incentive	2018 DSO Incentive Out-turn			2019 DSO Incentive Out-turn		
	Target	Actual	Payment/ Penalty (€m)	Target	Actual	Payment/ Penalty (€m)
Customer Minutes Lost (CML)	79.4	97.43	-€4.86m	72.2 (CML)	87.47 (CML)	-€2.79m
Customer Interruptions (CI) ⁶	1.04	1.23	-€4.04m	1.02 (CI)	1.23(CI)	-€4.42m
Customer Satisfaction	90%	91.75	€1.3m	90%	91.17%	€0.87m
Customer Satisfaction Survey (RedC poll)	81%	78.63	-€1.76m	81%	80.82%	-€0.14m
One Meter Reading per Year	98%	97.80	€0m	98%	97.82%	€0m
Avoiding Back to Back Meter Estimates	99%	99.85	€0.86m	99%	99.94%	€0.86m
Smart Metering	N/A	N/A	N/A	10k meters	15k meters	€0.51m
Stakeholder Engagement	10	6.8	€0.43m	10	7.5	€0.56m
Delivering New Connections (ECP-1) ⁷	All offers issued by 31st May 2020	On target	€0.5m	All offers issued by 31st May 2020	On target	€0.51m
Innovation ⁸	'Strong' (subject to CRU assessment)	€5m awarded, with €10m withheld for 2019 assessment	€5m in 2018	'Strong' (subject to CRU assessment)	Strong	€20m, plus €10m retrospectively awarded for 2018 improvements
Total			-€2.58m			€25.96m

⁶ CI is represented per single customer

⁷ You can find more on the CRU' Delivering New Connections (ECP-1) decision here: https://www.cru.ie/document_group/electricity-connection-policy-2/

⁸ Per CER/18/087, ESB Networks makes an annual submission to the CRU on its innovation activities. There is a total of €20 million incentive available each year of the PR4 period (2016 – 2020) in relation to this submission. In the 2020/2021 Distribution Network Allowed Revenue decision, the CRU have allowed €20 million in respect of ESB Network's 2019 innovation performance, with an additional €10m awarded based on ESB Networks successfully addressing a number of areas for improvement as identified by the CRU in the 2018 innovation performance.

07. SOCIAL OBLIGATION AND ENGAGEMENT

We are proud to have served customers and communities for over 90 years. As the energy industry changes, we will ensure that our customers remain at the centre of everything we do, as we support the transition to a low carbon future.

DIVERSITY AND INCLUSION AT ESB NETWORKS 2019

Diversity and inclusion are important to us in ESB Networks and we aim to foster an environment that enables everyone to bring their whole self to work, every day.

Each year, ESB Networks supports a range of events that help to foster an inclusive working environment such as International Women's Day, Diwali and Pride

INCLUSIVE LEADERSHIP SKILLS

ESB Networks Senior Leaders participated in an Inclusive Leadership Skills Programme in Q4 2019.

CHARITABLE VOLUNTEERING

In 2019, 25 ESB Networks staff submitted volunteering support applications under an initiative where staff volunteer for a minimum of 20 hours per year with a qualifying charity, and where staff can apply to the 'Energy for Generations Fund' for a donation of €250 for their chosen charity. A total of €6,250 was raised and donated in 2019.

TRAINEESHIP PROGRAMME FOR PEOPLE WITH DISABILITIES

Each year ESB Networks supports traineeship placements for People with Disabilities. ESB Networks is a leading employer of people with disabilities in partnership with AHEAD, who also provide training for mentors and disability awareness training.

MANAGING SUCCESSFUL PARENTING TRANSITIONS

ESB Networks supports the commitment to working towards a more consciously inclusive workplace and provides a coaching based programme which supports parents, managers and extended teams.

ELECTRIC AID

Established in 1987, ElectricAid is an independent, standalone charity set up and run by volunteers from ESB and EirGrid. As a registered charity, with its own constitution, it is administered and directed by an elected volunteer Committee, which includes staff from ESB Networks.

ElectricAid contributes to the development of people at home and abroad through co-funding of projects that aim for long-term sustainable improvement and relief of poverty and, where relevant, supports emergency appeals.

Since its foundation, ElectricAid has provided funding for small development projects in Ireland, as well as projects in 91 different countries and territories across Europe and the Developing World. Projects are monitored over the course of their lifetime and have been shown to have huge impacts on the lives of the poorest people. In addition, ElectricAid responds to disasters such as the Haiti earthquake and Cyclone Idai by providing funds from its own Disaster Relief fund and Special Appeals to our members, friends, and supporters.

In 2019, ElectricAid funded 119 projects in 36 countries totalling €1,133,781, compared to 125 projects in 39 countries totalling €1,073,180 in 2018

SCHOOL VOLUNTEERING

In 2019, a total of 37 ESB Networks Staff took part in Time to Read and Time to Count programmes.

The aim of Time to Read is to improve literacy rates with 2nd class children by increasing the enjoyment of reading, improving confidence and encouraging self-discovery among children during the 20-week programme.

The aim of Time to Count is to help 3rd class children build their confidence around numbers and help develop their problem-solving ability by playing fun numeracy-based games during the 10-week programme.

PRIDE

ESB Networks employees, allies, family and friends participated in the 2019 Dublin Pride Parade, while our Ally Awareness Programme continues to be rolled out across the business. Over 350 ESB Networks employees engaged in I Am An Ally Programme during Safety Week 2019. ESB Networks also branded a number of electric vans during Pride.

STAKEHOLDER ENGAGEMENT

We value the trust that has developed with our customers and stakeholders over many years. As the use of the network evolves, we understand the importance of keeping our customers at the centre of everything we do. Engagement is essential to maintain the alignment of interests between our stakeholders and the way we plan and run the ESB Networks business.

We have been actively developing our strategy and plans for effective stakeholder engagement in collaboration with all our stakeholders and continue to take on board the suggestions and recommendations received through feedback on our previous stakeholder engagements. In 2019, we published for public consultation ESB Networks' "Strategic Stakeholder Engagement Framework", which sets out our strategy to enable an open and ongoing dialogue with all our stakeholders. This framework identifies our stakeholders and the principles that guide our engagement, together with our proposed engagement methodology and our governance and control processes. Our engagement strategy is linked to our business objectives, goals and challenges by identifying the specific areas of engagement which are important to the needs of both our customers and our business alike.

Stakeholder engagement is seen as a vital activity at every level of our organisation and, as a strategic priority, is led by the Directors and the senior leadership team. We have appointed a senior manager with responsibility for stakeholder engagement who leads a dedicated team devoted to stakeholder engagement within our Strategy and Engagement group. This team works closely with Stakeholder Leads in each area of our business, ensuring that engagement forms a core element of our business processes, remains embedded in our business culture,

and is seen as a key element of the way we work by each employee within the organisation.

During 2019, we also published for consultation our "Strategic Stakeholder Engagement Plan 2020", which sets out our proposed engagement activities for the remainder of the fourth price control period (referred to as PR4). We will further revise and develop our stakeholder engagement plans going forward into the next price control period (PR5) to ensure they reflect our ever-evolving business and stakeholder requirements.

ESB Networks published in March 2020 its "Stakeholder Engagement Report for 2019". This report provided information on all areas of ESB Networks' stakeholder engagement approach and activities during 2019 and demonstrated how stakeholder feedback influences our engagement strategy and implementation and outlines the resulting benefits to both our stakeholders and our business objectives. Under the new incentive arrangements implemented by the CRU, ESB Networks' performance in terms of Stakeholder Engagement is assessed on an annual basis by the independent Network Stakeholder Engagement Evaluation (NSEE) Panel. ESB Networks was pleased to achieve a panel score of 7.5 out of a possible 10 for its performance in 2019. This score represented a 10% increase in our stakeholder engagement performance for the previous year. ESB Networks will carefully consider panel's feedback report and recommendations as we continue to develop and enhance our stakeholder engagement in conjunction with our stakeholders so that together we can deliver a brighter future for all.

If you would like to learn more about ESB Networks' innovation projects and activities you can find our more on our Innovation page on our website <https://www.esbnetworks.ie/who-we-are/innovation/innovation-in-esb-networks>



08. INNOVATION

Throughout 2019, ESB Networks continued its ambitious and active innovation programme progressing a portfolio of innovation projects. Building on 2018 and in order to step-change and further strengthen and improve the programme, feedback and inputs were sought and received from several sources such as CRU, industry, academia, partners and international contacts.

In particular, ESB Networks acted on and addressed a set of eight recommendations for improvement on our 2018 performance, as communicated by CRU in July 2019 (CRU Ref: D/19/13933 dated 24/7/2019).

During 2019, ESB Networks remained both activate in and committed to the delivery of collaborative projects where it was anticipated that learnings from interaction with national and international partners would deliver new and improved services and technologies to our customers. Some of these projects included the RESERVE, Superhomes 2.0, StoreNet, REACT, +CityxChange and SOGNO.

PERFORMANCE HIGHLIGHTS FOR 2019

Key improvements and achievements that were delivered on in 2019 included:

- > Embedding of a strengthened governance framework including regular and comprehensive reporting
- > A new dedicated innovation team organisational structure
- > The appointment of external advisors to support the development and implementation of innovation activities
- > Continued development of expertise and innovation capacity across the organisation
- > A step change in the level of third-party engagement, collaboration and dissemination
- > Greater use of ESB Networks' website for publishing project reports and innovation documentation
- > Increased clarity on the alignment of our innovation projects with the SIF incentive mechanism's distribution objectives

- > Enhanced qualitative and quantitative project evaluation approaches including revised and more robust CBA methodology and defined measures of success
- > The completion of a robust challenge on the level of innovativeness of our portfolio of projects guided by the Oslo Manual (2018) that reclassified some of our projects
- > Issued two project specific innovation consultations during the year
 - > "Load Indices Methodology", July 2019. This was an early deliverable from the Smarter HV and MV Customer Connections innovation project.
 - > "Smarter HV and MV Customer Connections", September 2019. Our engagements through the Innovation Forum saw specific opportunities for stakeholders to expand on feedback provided in the 2019 consultations
- > Holding our first Innovation Forum in November 2019, organised by the Innovation Team, which was attended by over 60 stakeholders, industry partners and academia
- > Issuing public industry consultations on ESB Networks overall innovation activities and responding to stakeholder feedback via documents and targeted stakeholder engagements

PROJECT DETAILS FOR 2019

At the beginning of 2019, 42 innovation projects were active. During the year, three of these were completed, two were cancelled and six new projects were introduced. In addition to this, an exercise to challenge the innovativeness of existing projects resulted in the reclassification of thirteen more projects. This meant that 30 projects remained as active innovation projects by the end of 2019 and beginning the year 2020. The detail below summarises the project activities through 2019:

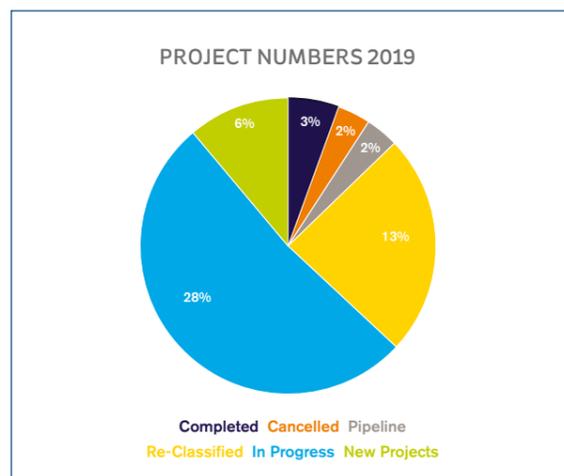


Figure 1 Project Breakdown 2019

The three projects completed in 2019

- > National Radio Access Network Project (Spectrum) – This project received significant media and stakeholder attention as it provides a cost-effective foundation for a ‘Smart Grid’
- > Superhomes 2.0 – Flexible ASHP Customers
- > RESERVE – Customer Flexibility

The two projects that were cancelled in 2019

- > LoRa Trial – Alternative service identified and sourced at the trial location
- > Open Visibility Trial – the equipment needed (to technology level 7) to allow the project to progress was not commercially available. This project may be revised when the sourcing of equipment commercially is possible

There were six new projects identified and introduced in 2019

- > Novel Protection for Public LED Lighting Programme
- > Investigate Climate Change Adaptation Approaches
- > Develop a Novel Slim Unit Substation for Magnefix >200kVA
- > Development of Modularised Metering and Control for RES Connections
- > Wildlife Overhead Lines Overhead Prevention
- > Exploration of Air Source Heat Pumps for Ireland’s Residential Heating Needs

As a result of both feedback from external stakeholders and an internal review and reflection on how to continue to improve the delivery of the innovation strategy and program, a decision was taken to rationalise what had been a set of eight roadmaps to three roadmaps. This conclusion was made towards the end of 2019 and is the basis for activities and reporting for 2020 and beyond. The three innovation roadmaps are:

- > Future Customer
- > Climate Action
- > Network Resilience

A significant amount of work was undertaken and progressed throughout 2019, not only in terms of project delivery but also in terms of delivery of a robust governance structure that enables the identification and approval of innovation projects, as well as their management throughout the project life-cycle.

Furthermore, there has been a notable step-change in our dissemination and engagement activities including our first innovation forum which was held in November 2019 and our first innovation consultation which are part of suite of activities that will ensure that the innovation activities of ESB Networks are cognisant of and addresses the requirements of all our stakeholders and customers. If you would like to learn more about ESB Networks’ innovation projects and activities, you can find out more on our innovation page on our website <https://www.esbnetworks.ie/who-we-are/innovation/innovation-in-esb-networks>



09. CONNECTIVITY AND DIGITALISATION

SMART METERING PROGRAMME

ESB Networks has begun replacing over 2.3 million electricity meters in homes, farms and businesses with next generation smart meters to support the transition to a low carbon electricity network. The upgrade will be delivered on a phased approach, having started in 2019 and completing in 2024.

The programme plans to upgrade over 200,000 meters by the end of 2020, but importantly also upgrades electricity retail market processes and systems so that electricity Suppliers are able to offer consumer-facing smart electricity services from January 2021. The programme is a key enabler of the government's Climate Action plan, specifically with regard to micro-generation and the electrification of heat and transport.



In support of these objectives a number of critical building blocks have been delivered during 2019 which will provide the foundation for later stages of the programme.

- > The project began installing smart meters in the Portlaoise and Bandon areas proving the safety and robustness of the various processes involved in managing the exchange programme. A total of 15,000 meters were successfully installed on target by the end of December 2019
- > The project has subsequently deployed smart meters in the Cork, Dublin South and Drogheda areas
- > The project on-boarded the Advanced Meter Infrastructure consortium of Kamstrup, Siemens and Three Ireland and made significant progress in establishing the AMI and communications network
- > In support of smart electricity services, ESB Networks has led industry forums and working groups ensuring alignment with Supplier system and process development and provided on-going support for Supplier queries of which there were over 500 in 2019
- > ESB Networks has led the implementation of the agreed industry wide Strategic Framework for Communications and Consumer Engagement designed to support the meter deployment programme. ESB Networks has commenced a local public awareness media campaign using radio, local press and social media channels, launched a smart meter upgrade section on the ESB Networks website, developed programme branding, media assets and stakeholder packs and has delivered briefings to national and local stakeholders
- > Consumer surveys conducted during 2019 demonstrate that customer awareness is rising and that sentiment towards the programme is positive. This is further supported by the 96% success rate of planned exchanges



SMARTGRID

ESB Networks is embarking on designing and building a private mobile communications network to facilitate the electrification of heat and transport, reduce carbon emissions and enhance the reliability and safety of the electrical network. It successfully acquired a 15-year radio spectrum licence from ComReg in November 2019 and will use this spectrum to deliver a private Long-Term Evolution (LTE) network. These private LTE networks have been deployed by electrical utilities in the US for mission critical services. ESB Networks and the Irish regulators are at the forefront of this innovation in Europe and now, other EU countries are following the Irish example.

During 2019, ESB Networks Telecoms completed technology trials of the private LTE technology with multiple vendors. These trials were conducted initially in the laboratory environment and then progressed to trials with devices in the field in a real-life environment. A high-level radio network planning exercise to understand the network requirements to provide coverage and capacity for tens of thousands of devices was also completed.

ESB Networks Telecoms formally engaged with ComReg's radio spectrum release process where spectrum was released specifically for Utilities only. The spectrum ESB Networks was awarded is 410 – 414 MHz paired with 420 – 424 MHz. A project has now been established to deliver this telecommunications network where the tendering exercise will begin in 2020 and deployment of the network will commence in 2021. Ultimately, this private LTE network when deployed will enable ESB Networks to deliver on its Innovation Strategy.

MARKET DEVELOPMENT

MARKET RELEASES

During 2019 ESB Networks successfully delivered V12.00.00 of the Retail Market Design, this included the following MCRs for the Republic of Ireland Retail Electricity Market:

MCR0175	New Reject Reasons for Address Change Rejection
MCR1173	Vulnerable Customer Implementation in ROI of SI 463
MCR1167	Facilitate energy efficiencies in Local Authority Public Lighting
MCR1140	Introduction of Eircodes into the Retail Market Design in Ireland
MCR1169	Addition of Postal Code to two Downloadable Meter Point Details Files
MCR1175	Provide Market Participant Business Reference (MPBusinessReference) for Reading
MCR1180	New Registration Default Supplier
MCR1184	Cooling off for CoS
CoBLCR015	New RM Code

The successful delivery of the V12.00 market release facilitated important regulatory policy changes such as MCR 1180 'New Registration Default Supplier' and MCR1184 'Cooling off for Change of Supplier.' In addition, the V12.00 market release complemented governmental policy with the introduction of Eircodes into the Retail Market Design.

ESB Networks also delivered changes to the central market systems in parallel with the V12.00.00 market release to enable the delivery of market functionality required to support the transition to Smart Meters which are an important element of the Government's 'Climate Action Plan to tackle Climate Breakdown!'⁹

Together with our colleagues in NIE Networks, ESB Networks delivered an upgrade to the shared Retail Market Messaging Solution.

⁹ <https://www.dccae.gov.ie/documents/Climate%20Action%20Plan%202019.pdf>

10. SERVICE LEVEL AGREEMENTS PERFORMANCE

The Service Level Agreement (SLA) Report in the following table contain the complete set of results for 2019. The report provides a description of each SLA and the measure against which its level of performance is reported. The actual performance is measured as the percentage of transactions that were completed within the agreed SLA time-line and the percentage completed within twice the SLA time-line during 2019

Description	No.	Standard Approval Time Lines (SLA)	Within SLA Time Line	Within Twice SLA Time Line
Change of Supplier (NQH)	1A	Validate within 5 days	100%	NA
	1B	Using customer read supplied by the customer - Complete within 3 days	99.67%	99.96%
	1B	Using a special read organised between the customer and ESB Networks - Complete within 10 days	98.70%	100%
	1B	Using one of ESB Networks scheduled reads - Complete within 3 days	95.20%	100%
Change of Supplier (QH)	2A	Validate within 5 days	99.92%	100%
	2B	Complete within 3 days	97.86%	100%
New Connection and registration with supplier (QH)	3A	Validate supplier cancellation within 5 days	99.88%	100%
	3B	Complete supplier cancellation within 5 days	99.82%	100%
New Connection and registration with supplier (NQH)	5A	Prepare Quote - Within 7 working days where no site visit required. Within 15 working days where site visit required	95.89%	100%
	5B	Complete connection - Within 10 working days of receipt of ETCI certificate.	98.94%	100%
	5C	Data Processing - Issue details to Supplier within 10 Days	99.29%	99.78%
New Connection and registration with supplier (QH)	6A	Prepare Quote - Within 7 working days where no site visit required. Within 15 working days where site visit required	95.89%	100%
	6B	Complete Connection - Within 10 working days of receipt of ETCI certificate.	98.94%	100%
	6C	Data Processing - Issue details to Supplier within 10 Days	100%	NA
Change to meter point characteristics	8A	Prepare quote - Within 7 working days where no site visit required. Within 15 working days where site visit required	95.89%	100%
	8B	Complete change - Within 10 working days of receipt of ETCI certificate.	98.94%	100%
	8C	Process Change - Issue details to Supplier within 10 Days	97.11%	98.78%

Description	No.	Standard Approval Time Lines (SLA)	Within SLA Time Line	Within Twice SLA Time Line
De-energisation of Meter Point	9A	De-energise of meter point within 5 days	92.95%	96.51%
	9B	Issue Meter details to Supplier within 10 Days	99.31%	99.94%
Re-energisation of Meter Point	10A	Re-energise meter point within 5 days	98.68%	99.34%
	10B	Issue Meter details to Supplier within 10 Days	99.25	99.87%
Change of Meter Configuration	11A	Reconfigure meter within 5 days after the receipt and validation of Supplier request	96.82%	98.69%
	11B	Process data within 10 days	99.23	99.9%
Meter Problems and Reports of damage	12A	Repair or replace faulty meter within 5 days	76.27%	84.05
	12B	When a faulty meter is Repaired or Replaced - Process Meter Data within 5 days	98.26%	99.23%
NQH Meter Reading	14A	Scheduled Read - Distribution of Reads to Suppliers within 7 workdays	99.89%	99.95%
	14A	2 Scheduled reading visits per annum	99.99%	NA
	14A	4 Scheduled reading visits per annum	99.60%	NA
	14A	Actual reads for scheduled meter reading visit	81.37%	NA
	14A	Actual reads for scheduled MD meter reads	98.00%	NA
	14A	One actual read per annum	97.82%	NA
		No Consecutive Block Estimations	99.93%	NA
	14B	No Consecutive MD Block Estimations	100%	NA
	14B	Out of Cycle Customer Read - Readings processed within 3 workdays	97.48%	99.19%
	14C	D+4 QH data-	100%	NA
QH Data Collection	15A	Send to SEM-O / Suppliers in 1 workday	97.49%	98.11%
	15B	QH Actual Data. Send to suppliers within 4 and 10 days**	53.53%	68.53%
Request for Special Read	18A	Site visit by 7 days	75.00%	79.35%
	18B	Issue of Meter details within 3 Days	100%	NA
Data Aggregation	16	Issue of aggregated data to SEM-O/TSO/ Suppliers and Generators within 5 workdays	100%	NA
Change of SSAC	20	Complete process in 3 workdays	100%	NA
De-registration	21	Auto Completion within 5 workdays	100%	NA
		Manual Completion within 10 workdays	100%	NA
Change Customer Details	24	Complete within 5 days	99.98	100%
Change Legal Entity	25	Complete within 5 days		



11. REGISTER OF ASSETS

Register of Distribution System Assets at end of 2019

Asset	Units	Volume
220kV		
220kV Substations	Sub	3
220/110kV Transformer Capacity	MVA	2,500
110kV		
110kV Overhead Lines	km	417
110kV Underground Cable	km	212
110/38kV Substations	Sub	93
110kV/MV Substations	Sub	40
110/38kV Transformer Capacity	MVA	6,796
110kV/MV Transformer Capacity	MVA	1,558
38kV		
38kV Overhead Lines	km	5,694
38kV Underground Cable	km	1,223
38kV Substations	Sub	438
38kV Transformer Capacity	MVA	5,309
MV		
20kV 3-ph Overhead Lines	km	15,050
20kV 1-ph Overhead Lines	km	31,614,
10kV 3-ph Overhead Lines	km	13,210
10kV 1-ph Overhead Lines	km	24,015
20kV Underground Cable	km	1,780
10kV Underground Cable	km	8,391
3-ph Pole mounted Transformers	Trafo	21,427
1-ph Pole mounted Transformers	Trafo	221,220
MV Ground Mounted Substations	Sub	22,269
LV		
LV 3-ph Overhead Lines	km	4,600
LV 1-ph Overhead Lines	km	55,271
LV Underground Cable	km	13,471
Mini-Pillars	MP	174,991



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