



Energy for  
generations

# ESB

## Charged: Infrastructure for our future

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[esb.ie/ecars](http://esb.ie/ecars)



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# Content



Energy for  
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1. Electric Vehicles and Policy Drivers

2. Ireland's EV Charging Infrastructure – Progress to Date

3. EVs: National Uptake

4. The Global Transformation

5. Future Network Requirements

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# 1. Electric Vehicles and Policy Drivers



- Commitment to 1.5°C (from 2°C)
- 5 year planning and review cycle
- Increased ambition every cycle from 2018
- EU feels a moral pressure to keep pressure on others

12<sup>th</sup> December, 2015

- Low Carbon Mitigation Plan
- National Clean Air strategy
- Commitment to 80% Reduction in Energy Emissions by 2050

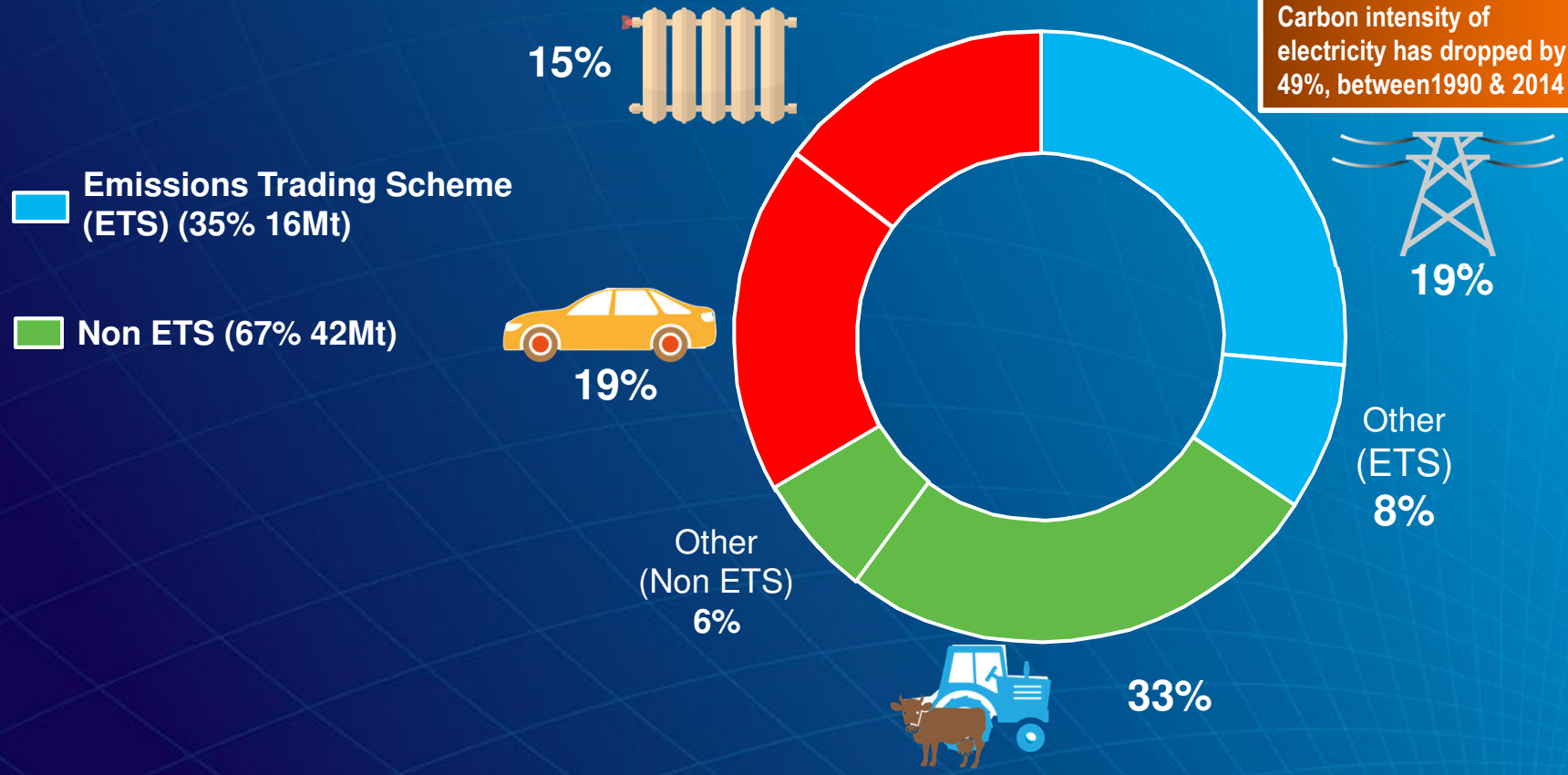
How can Ireland achieve this?



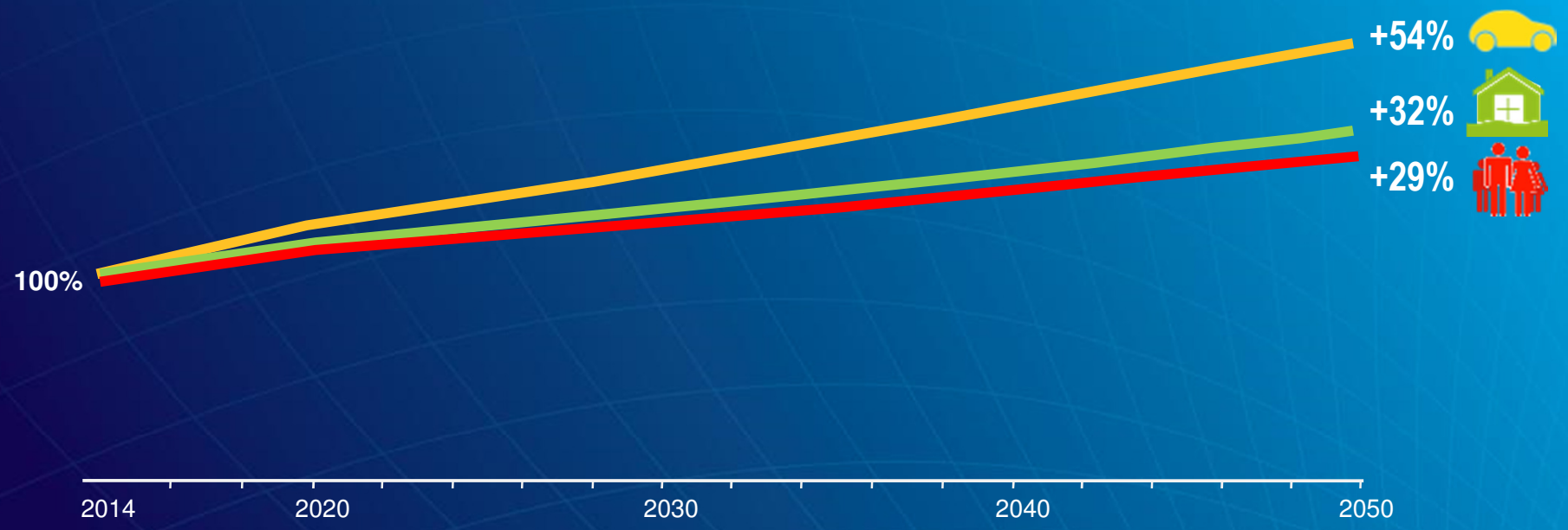
# Ireland's Greenhouse Gas Emissions



Carbon intensity of electricity has dropped by 49%, between 1990 & 2014

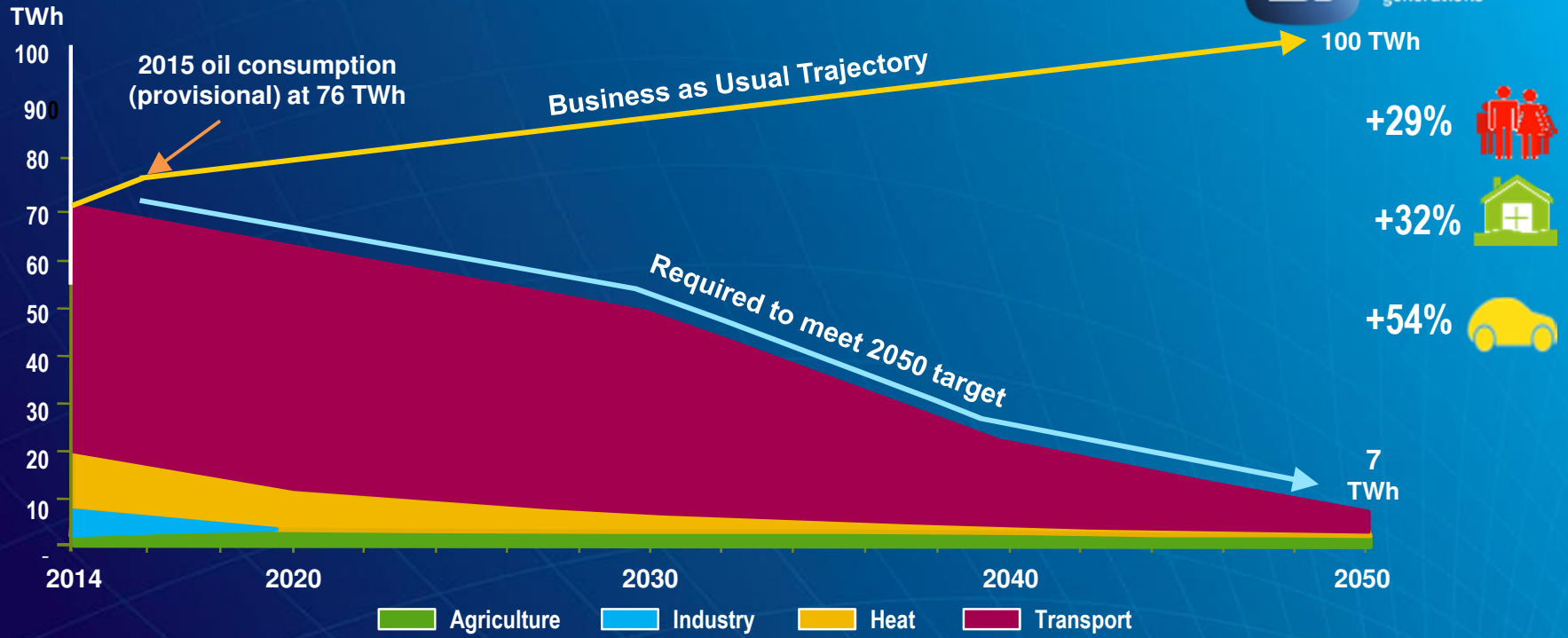


# Oil Consumption Projections



**Growing Demand**

# Oil Consumption Projections

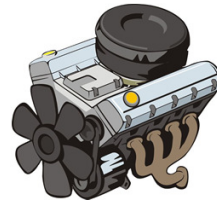


We need a reduction in fossil oil from 6.25M to 0.5 tonnes per year

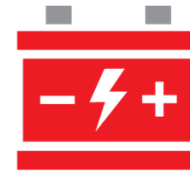
# The Role of Electrification



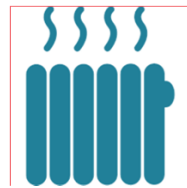
Transport



20-25% efficient



75% efficient



Heating



70- 90% efficient



300% efficient

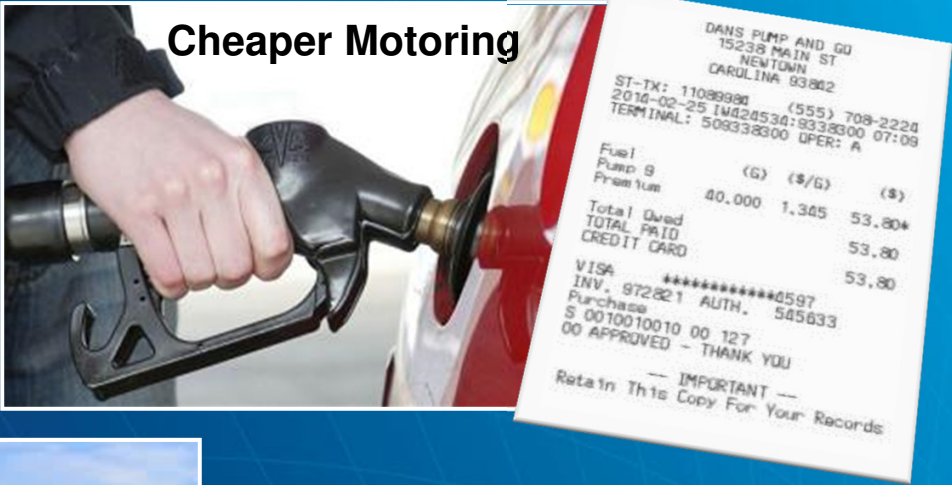
Smart heat and EVs have a major role in meeting energy efficiency targets



# Benefits of EVs



Energy for generations



Cheaper Energy  
*..... for everyone*

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## 2. IRELAND'S EV CHARGING INFRASTRUCTURE



### HOME CHARGER



- 2,100 home chargers installed free
- Majority of EV drivers recharge at home
- Allows owners to avail of cheaper night rate electricity
- ESB free scheme ends December 2017

## Public / Destination Charging



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- 1,100 public/standard charge points
- Located on-street, public car parks, retail centres and transport hubs
- All charge points are accessible North and South through a single access card
- Typical charging time varies between 1-5 hours

## Fast / Rapid Charge Points

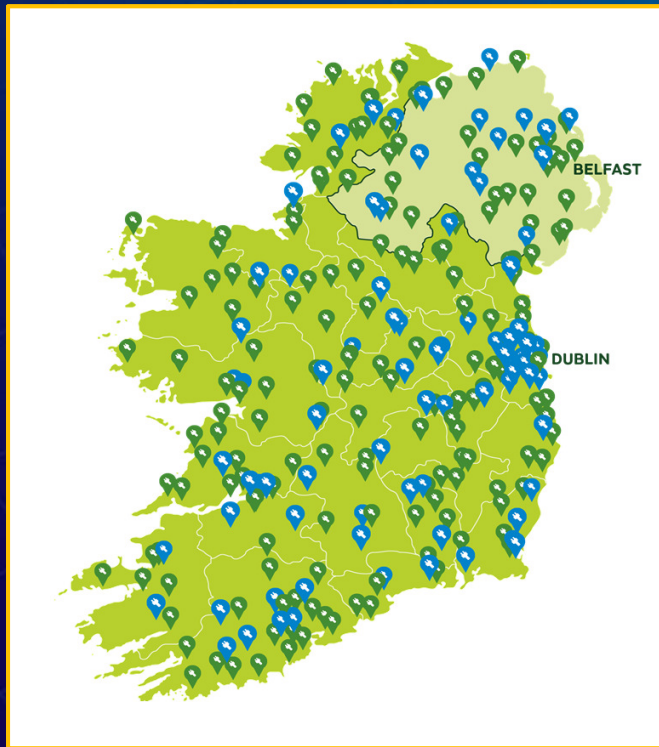


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- 90 fast charge points
- 50kW DC
- Provide an 80% charge in as little as 25 Minutes
- Mainly located at service stations every ~60km
- Facilitate longer distance journeys

## Extensive Island-Wide Network



- World's First Nationwide EV public charging infrastructure



90 x 50 kW Fast Chargers



1,100 x 22 kW Standard Chargers

- North and South allowing cross-Island travel and providing Public EV charging in every community with >1,500 population
- Comprehensive maintenance program in place

# ESB - Providing an Electromobility Service



## CUSTOMER EXPERIENCE

FIND NEAREST CHARGE POINT



CONNECT AND CHARGE



PAYMENT AND BILLING



CHARGE POINT NETWORK



SMART INFRASTRUCTURE



CHARGE POINT MANAGEMENT SYSTEM



## NETWORK OPERATIONS



CUSTOMER SUPPORT

OPERATIONS AND MAINTENANCE



DIGITAL SUPPORTS



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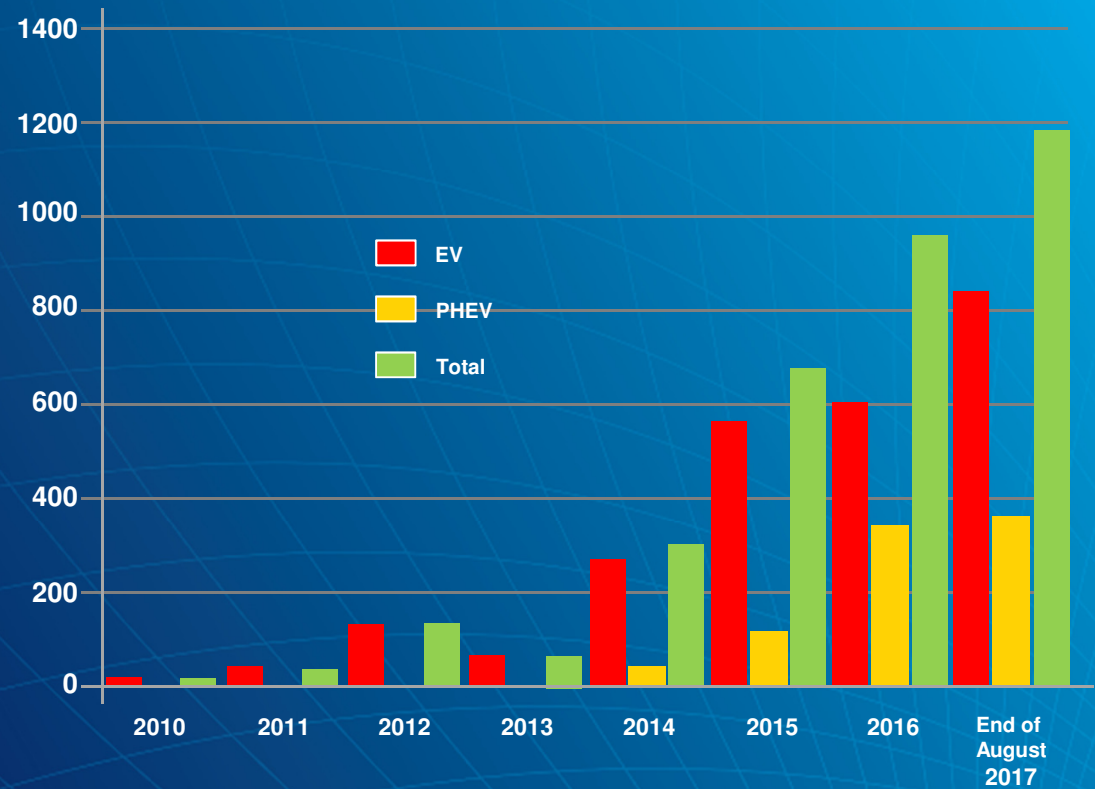


### 3. EVS: NATIONAL UPTAKE



#### EV Sales in Ireland

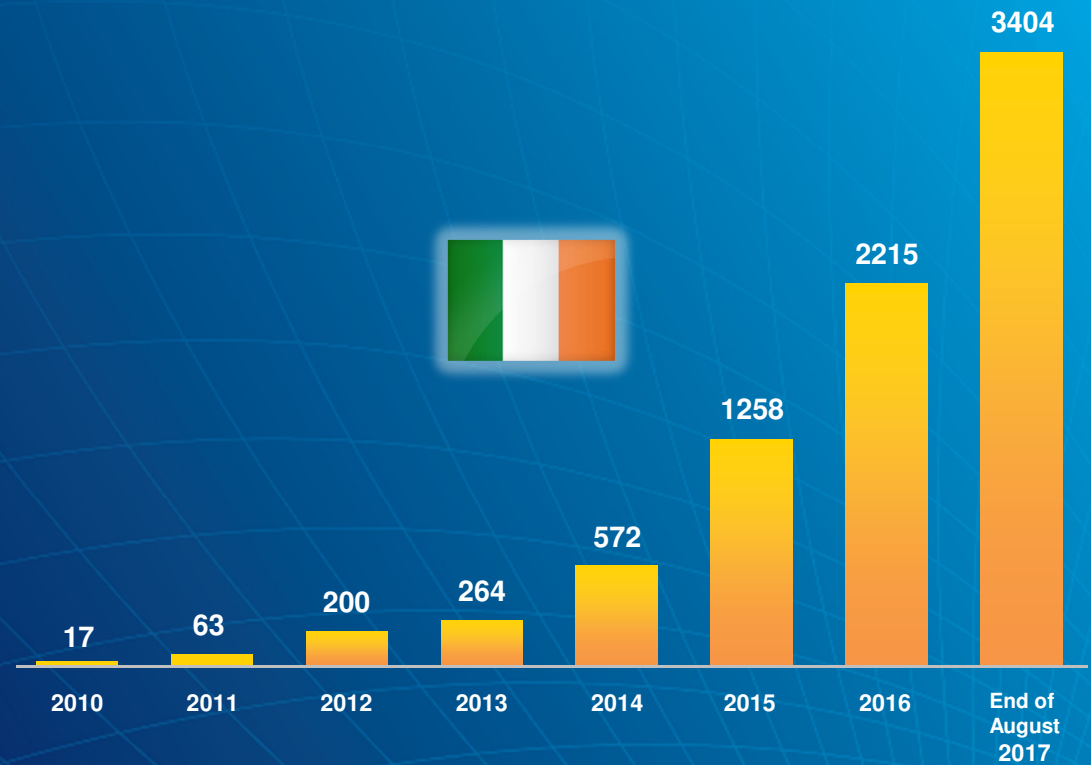
- 3,400 EVs registered in total
- 75% Battery Electric vs 25% Plug in Hybrid
- 1,200 registrations this year
- ~64% increase in EV registration compared to the same time last year (1,200 vs 730)



### 3. EV Uptake

#### EV Sales in Ireland

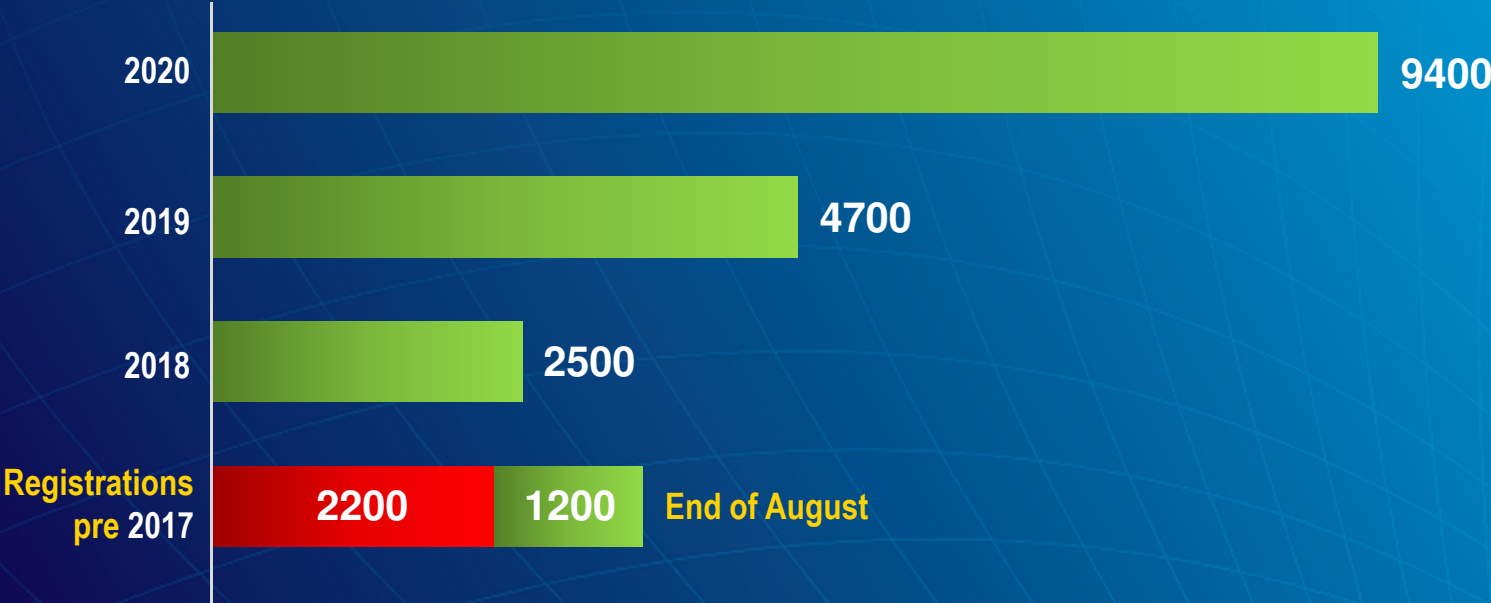
- 3,400 EVs registered in total
- ~75% Battery Electric vs ~25% Plug in Hybrid
- 1,200 registrations this year
- ~60% increase in EV registration compared to the same time last year (1,200 vs 730)



# EV Sales to Meet 2020 Target

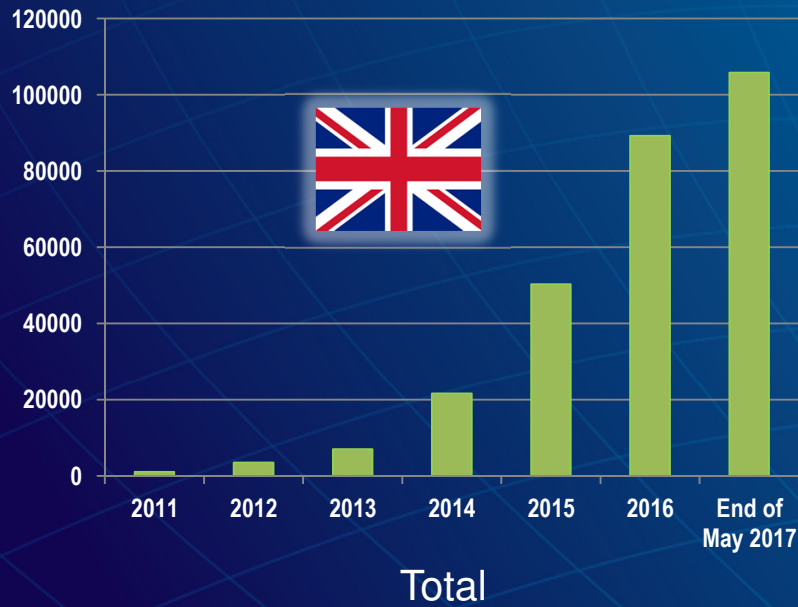


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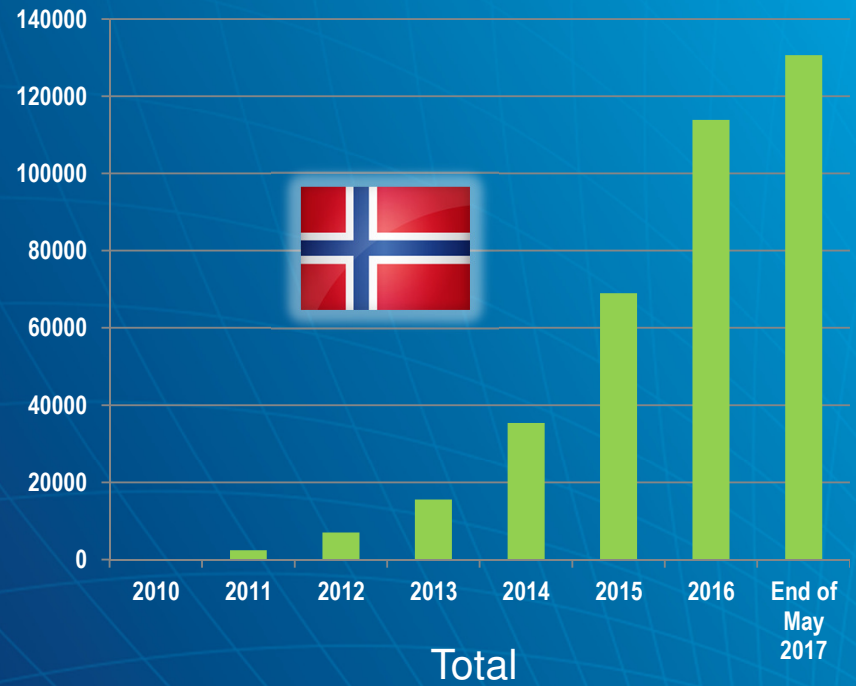


# EV Sales in Other Jurisdictions

## United Kingdom



## Norway



# Policy Innovation for EVs



CO<sub>2</sub> Tax Treatment for Company Cars



Traffic Management



Parking Fees / Priority



Tolls

## Making It Happen – Working Together !

- CO<sub>2</sub> Based Benefit-in-Kind taxation for company vehicles
- Free tolls at government owned toll roads – M50, Port Tunnel and East Link in Dublin
- Zero road tax for electric vehicles (currently €120)
- Free on-street parking for EVs while charging
- Public information and awareness campaign promoting EV



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## 4. EVs: The Global Transformation

### Policy

#### EU Vehicle Emission Regulations

130  
↓  
73  
g/Km



2015

2025



### Technology



Better Range & Reduced Battery Cost

Even Faster  
Charging

**50 - 150kW**





## ESB on Framework for London rapid chargers



- Air quality policy driving electrification of transport in UK
- New London Black Cabs must be zero emission capable from Jan 2018
- ESB ecars appointed to TfL Framework, to bid to provide rapid chargers for taxis
- 300 sites identified by TfL for rapid charging across London by 2020
- Contracts will be awarded later this year



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## A Transformation for a Brighter Future

- UN, EU and National Policy drivers towards decarbonisation of transport
- Air quality policies also driving the electrification of transport
- Ireland has a unique opportunity to be a world leader in e-mobility by creating the world's first nationwide high power charging network
- Investment plan to fund this charging infrastructure
- Cross Departmental LEV Task Force





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Thank You