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eMotorWerks
Smarter charging solutions

Presented by Karen Hsu

Flexible end-to-end charging ecosystem

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Smart charging stations everywhere cars are charged

Grid-integrated and car-connected IoT platform

JuiceNet™ by eMotorWerks

Energy services for grid balancing and cost reduction

Start-up agility backed by one of the world's largest integrated gas and electric utilities

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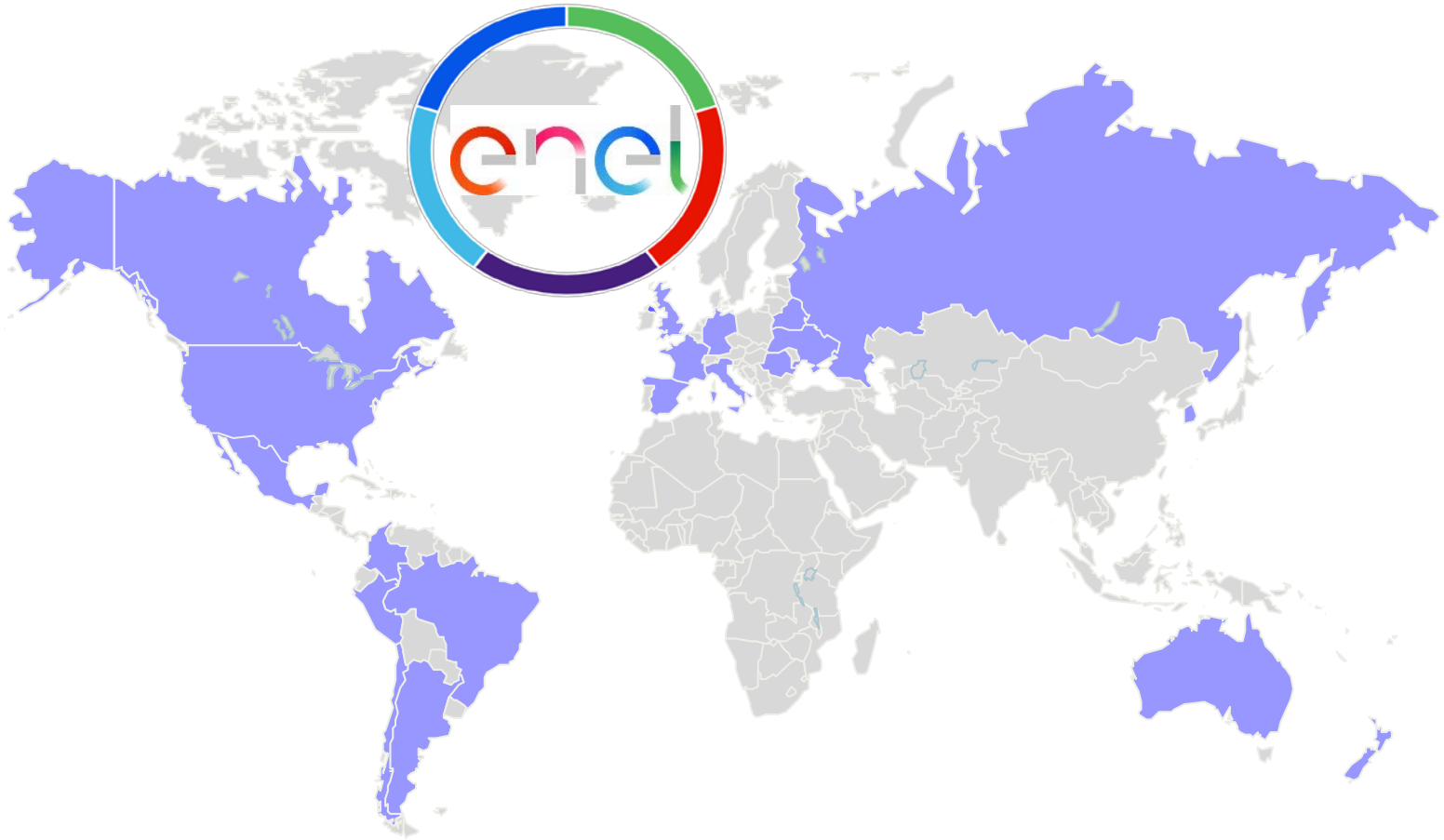

Enel by the numbers

35 countries across **5** continents
63.5 million customers
#1 renewables operator
62,900 employees across the world
#1 V2G technology provider

Electric Vehicles Market

Driver: Falling battery prices / Volatile Gas Prices / Leverage Renewables

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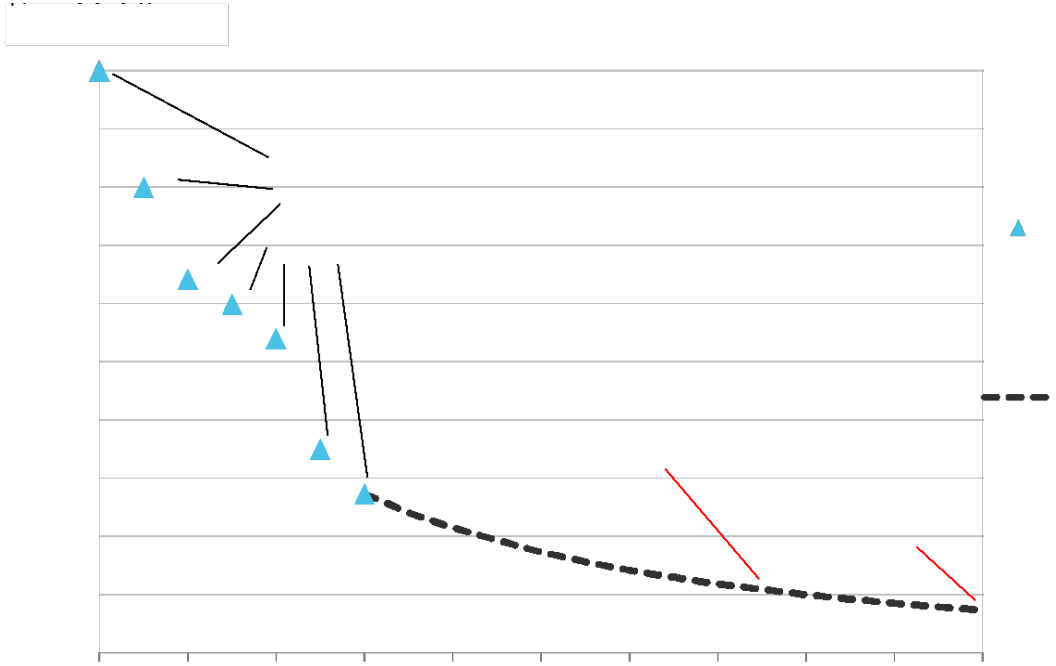
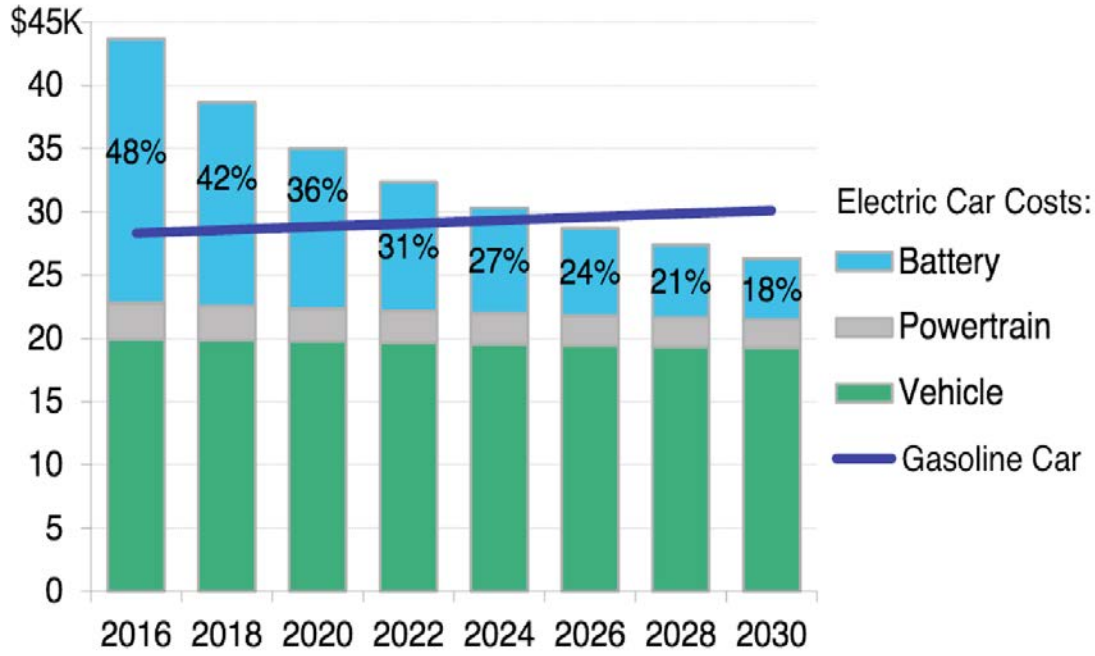
Li-Ion Battery Prices drop as the technology driver of EVs mass market

Falling battery prices are expected to **undercut gasoline cars by mid-2020s**



Note: Prices are an average of BEV and PHEV batteries and include both cell and pack costs. Cell costs alone will be lower. Historical prices are nominal, future ones are in real 2016 U.S. dollars.

Source: Bloomberg New Energy Finance



Source: Bloomberg New Energy Finance

e-Mobility Revolution

Why it matters

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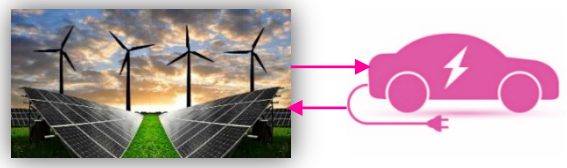
Renewables

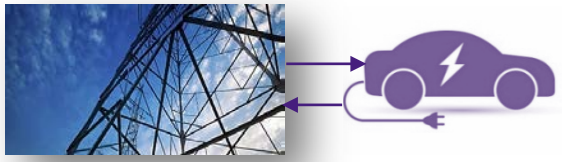
Renewables are **intermittent**



e-Mobility supports renewables integration and delivers flexible capacity to the grid

Infrastructure & Networks

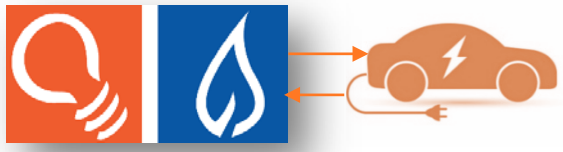
I&N are affected by **power congestion**



e-Mobility can avoid power congestion by **balancing the grid**, **sharing infrastructures** with many users connected to multiple networks and **decentralizing control and management**

Customers

Customers are getting more power



e-Mobility can **break boundaries across sectors,** thanks to new **ancillary services** to the grid, such as supplying energy if needed in exchange for compensation

Levels of Charging - Basics

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Charger Level	Requirement	Charge / Use	Challenge	Benefits
Level 1 (Early EVs)	Standard Household outlet 120V	2-5 miles of range per hour/nightly charge/low mileage users	Slow charge	No infrastructure needed
Level 2 (Bulk of Market)	Electric Vehicle Supply Equipment (EVSE) 220v - 240v up to 80 amps	Approximately 10-20 miles of range per hour Home, workplace or public charging Hardwire or plug in	Requires 220 - 240v outlet	• Shorter charging times • Suitable for homes and businesses • Easy to install and maintain • Affordable and convenient • Control and monitoring features • Mature technology
DC Fast Charger	Large, gas pump-sized machine; 10k and higher; large battery bank supplements grid for a faster charge	80% charge in 30 minutes Service stations	• Limited applicability • High infrastructure / equipment cost • High maintenance costs • High cost of charging • Evolving technology	• Perfect for on-the-go charging

Level 2 benefits across the EV value chain

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EV DRIVERS

Intelligent control, green charging, utility incentives

BUSINESSES

Intelligent control & access to energy services

- Workplaces
- MUD
- Cities
- Destinations

EVSE PARTNERS

IoT intelligence & demand flexibility incentives

- ClipperCreek, Inc.
- AeroVironment
- VOLTA
- NAYAX

AUTO OEM

Connected EVs and smart grid integration

Multiple partnerships with international automotive OEMS

UTILITIES

Charging load aggregation & control

- Sonoma Clean Power
- EDF
- PG&E
- Xcel Energy

Best-in-class smart charging solutions that support the needs of drivers and the grid

JuiceNet Enterprise: a suite of benefits for fleet & site managers

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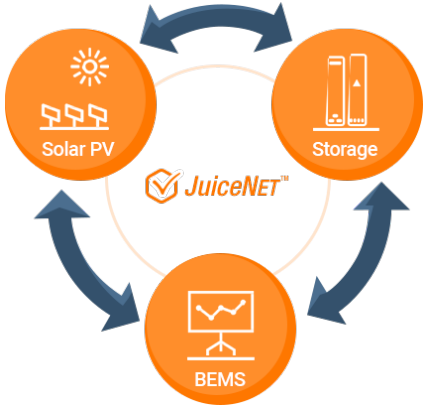
Power & convenience

Level 2 charging and the industry's best user experience for tenants, employees and guests



Optimize your site

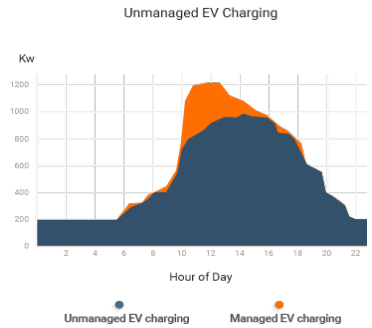
Coordinate your EV charging load with your on site generation and energy management systems

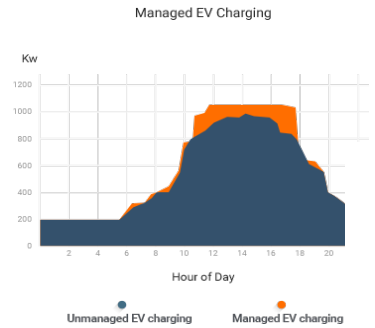
Don't pay. Get paid!

Participate in energy markets and get paid by utilities and grid operators for charging at the right time

Cost Savings

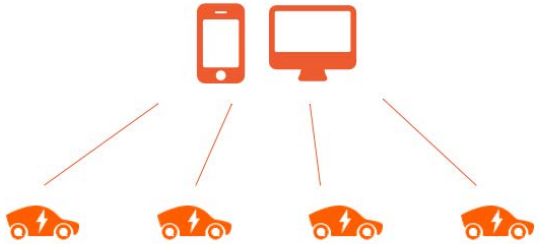
Minimize unwanted demand peaks and reduce utility demand charges





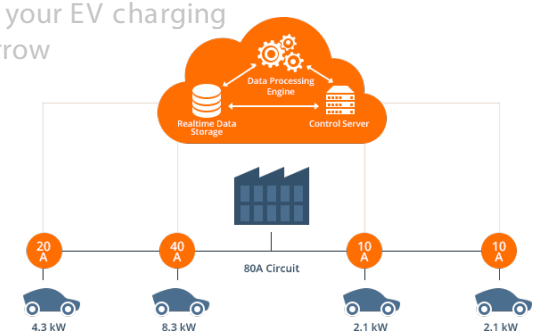
Charging access control

Manage charging access, set load groups and access historical charging data



Future proof your site

Intelligent load balancing ensures that your electrical infrastructure today supports your EV charging needs of tomorrow



Level 2 Charging Solutions for Commercial Spaces

JuiceBox provides the best combination of value and features among all EV charging options available today.

	Non-Connected Charger	eMotorWerks	Traditional Commercial EVSE
Price Range - One Time (Per Port)	$700 - $2,500	$800 - $1,500	$4,000 - $7,000
Price Range - Monthly (Per Port)	$0	$0 - $10	$20
Access Control	No	Yes	No
Billing	No	Yes	Yes
Load Sharing	No	Yes	Yes
Advanced Energy Management	No	Yes	No

Planning & Preparation

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1. Determine your objectives for the program

2. Identify and understand user base and size

3. Planning installation of equipment
   - Location
   - Access to electric panel (key cost factor)

(Available 2019)

How eMotorWerks can help

- ❑ Program Design
- ❑ Equipment Selection
- ❑ Professional Installation: Partner Network or Local Electrician
- ❑ Most Competitive Pricing

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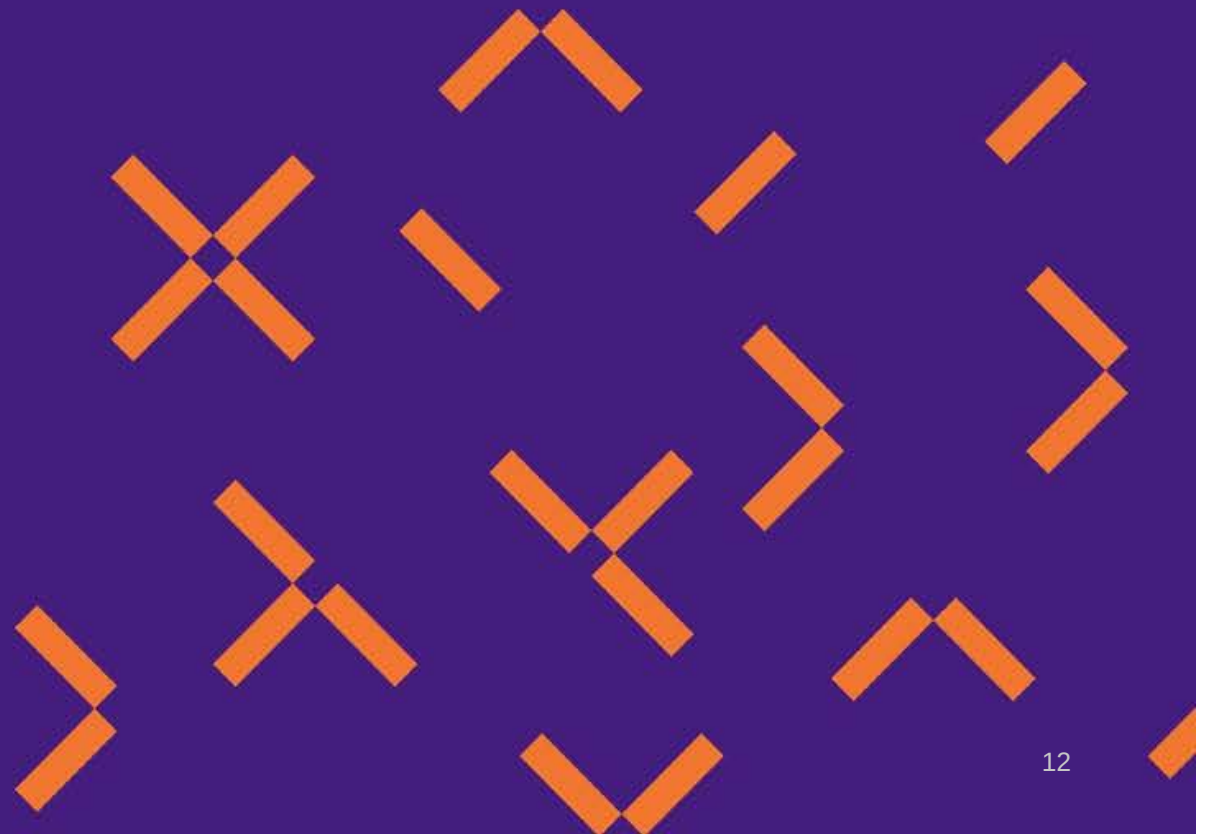
Questions ??



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Thank you!