



Vendor Day

Procurement Italia

Renato Mastroianni

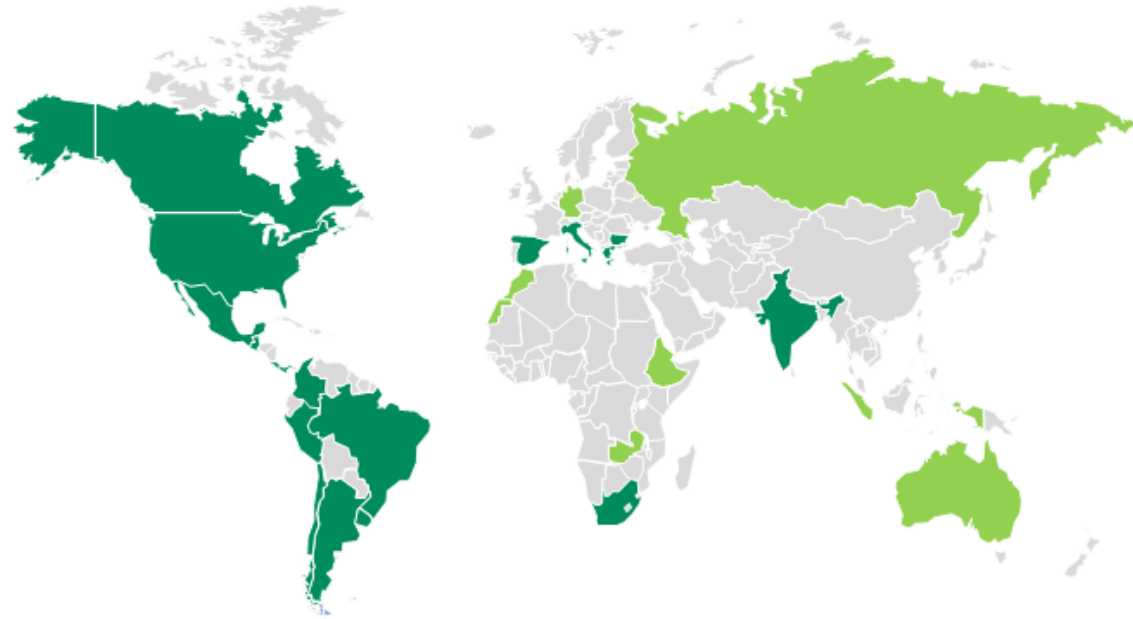
Responsabile Global Renewable Energies Procurement

Agenda





- Overview Global Renewable Energies
- Principali Indicatori e Contrattualizzato 2017 - Pianificazione 2018
- S.E.N. - Strategia Energetica Nazionale
- Obiettivi Enel Green Power
- Fornitori – Qualificazione
- Struttura di appalto degli impianti wind e solari

Overview Global Renewable Energies

Presence and key figures



■ Countries of presence
 ■ Countries with advanced stage of development

				
Consolidated capacity (GW)	6.6	2.2	27.5	0.8
Managed capacity (GW)	2.6	0.4	0.3	0.1

Key figures

	2017	Managed
Capacity (GW)	37.1	40.5
Production (TWh)	85.1	92

Key financials (€bn)

	2017
EBITDA	4.1
Opex	1.4
Maintenance capex	0.3
Growth capex	3.4

Geo Hydro Wind Solar

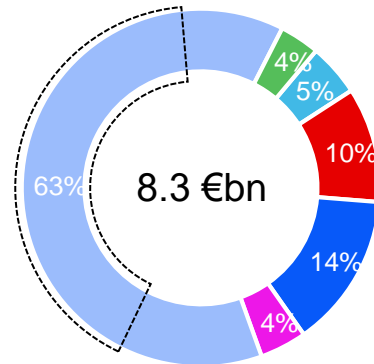


Overview Global Renewable Energies

Industrial growth: 2018-20 capacity additions and growth capex

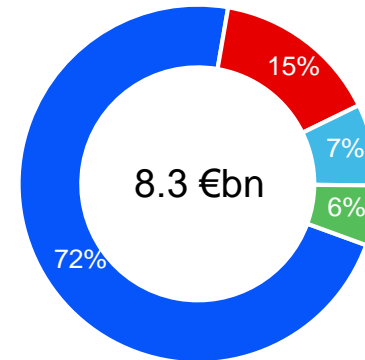


Growth capex by geography



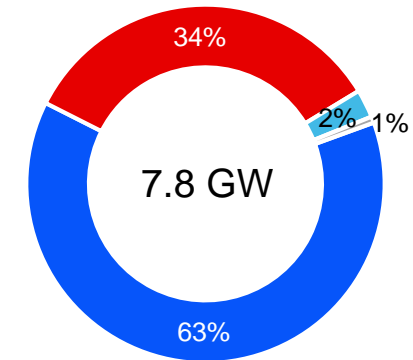
- Italy
 - Iberia
 - South America
 - Europe & North Africa
 - North & Central America
 - Subsaharian Africa & Asia
- [BSO]

Growth capex by technology



- Wind
- Solar
- Hydro
- Other

Capacity additions¹ by technology



- Wind
- Solar
- Hydro
- Other

Balanced organic investment portfolio and accelerated pipeline monetization through BSO

1. Additional capacity includes 1,3 GW of Mexican projects sold in 2017 and 0,3 GW Australia Solar projects consolidation

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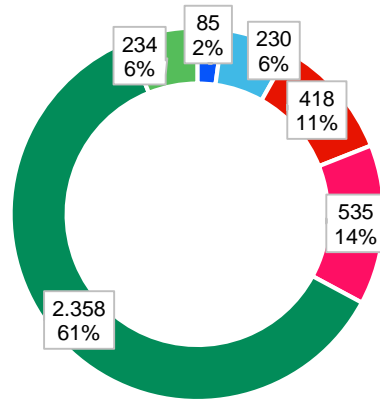
Negotiated Amount – GRE Procurement



Negotiated 2017 = 3.9Bn€

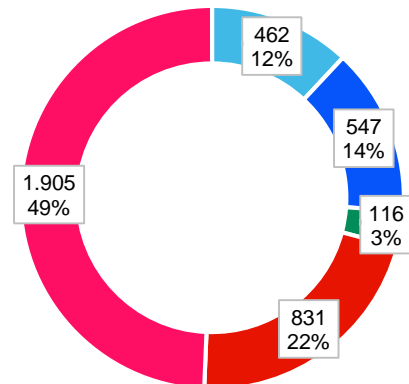
by Tech

- Bio
- Geo
- Hydro
- Solar
- Wind
- Other



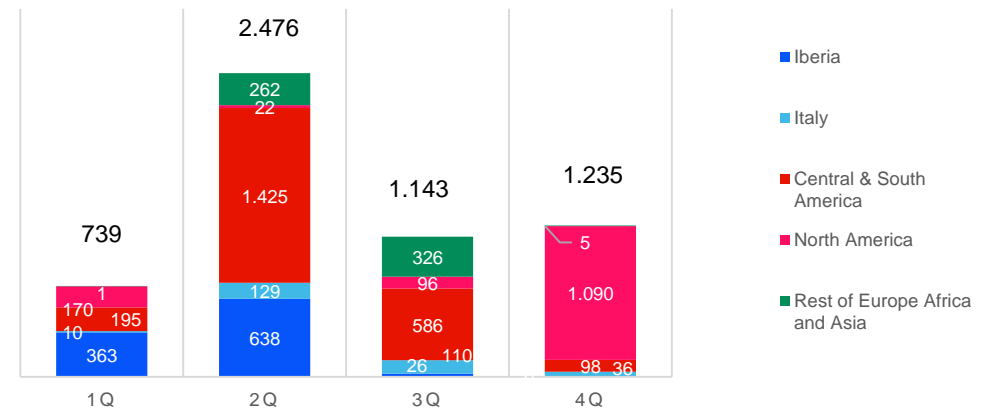
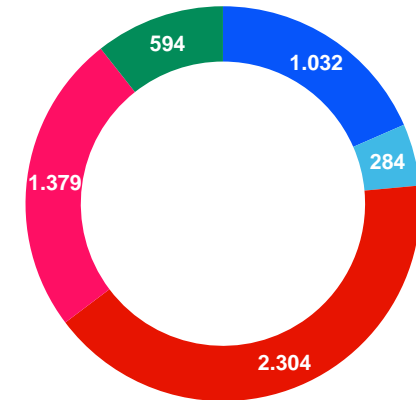
by Area

- Italy
- Rest of Europe, Africa and Asia
- Iberia
- Central and South America
- North America



Planning 2018 = 5.9Bn€

- iberia
- italy
- Central & South America
- North America
- Rest of Europe Africa and Asia



Values in M€

Values in M€

Negotiated Amount – Italy GRE Procurement

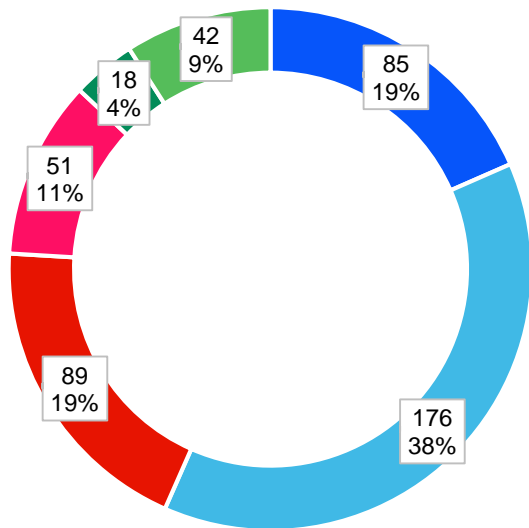


Negotiated 2017 = 462 Mn€

Planning 2018 = 284 Mn€

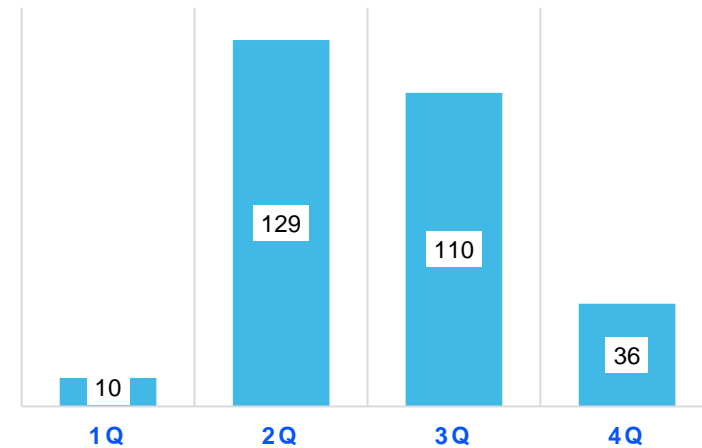
Values
in M€

by Tech



■ Bio ■ Geo ■ Hydro ■ Solar ■ Wind ■ Other

by Quarter



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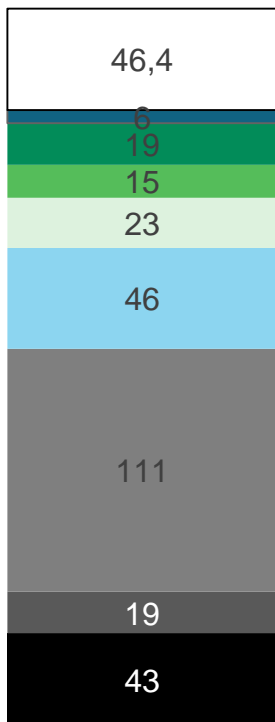
Mix elettrico 2030

Scenario SEN



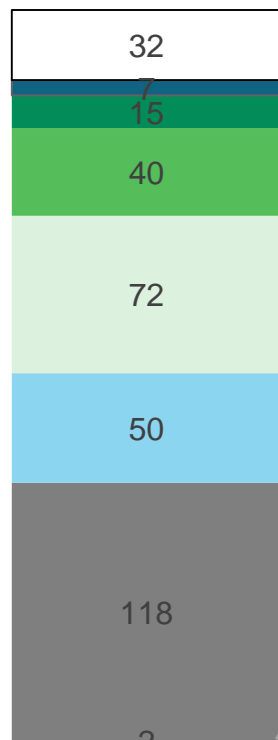
TWh

328



2015

336



2030

Import

Geo.

Biomasse

Eolico

Solare

Idro*

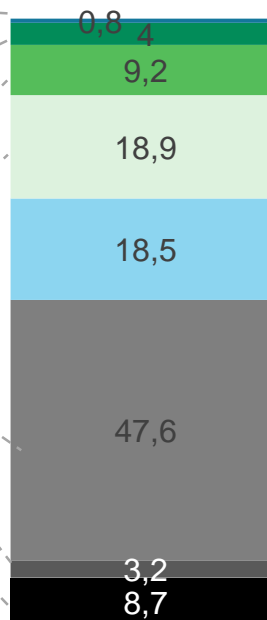
Gas

Oil

Carbone

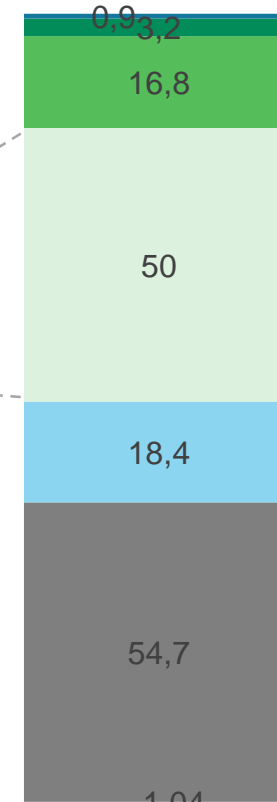
GW

111



2015

145



2030

+8 GW



+30 GW



* pompaggio escluso

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Obiettivi EGP su scenario SEN

Wind + PV Utility scale



3.000 MW/y

**Target SEN periodo 2018/2030:
+40 GW (di cui 16 GW Utility Scale)**

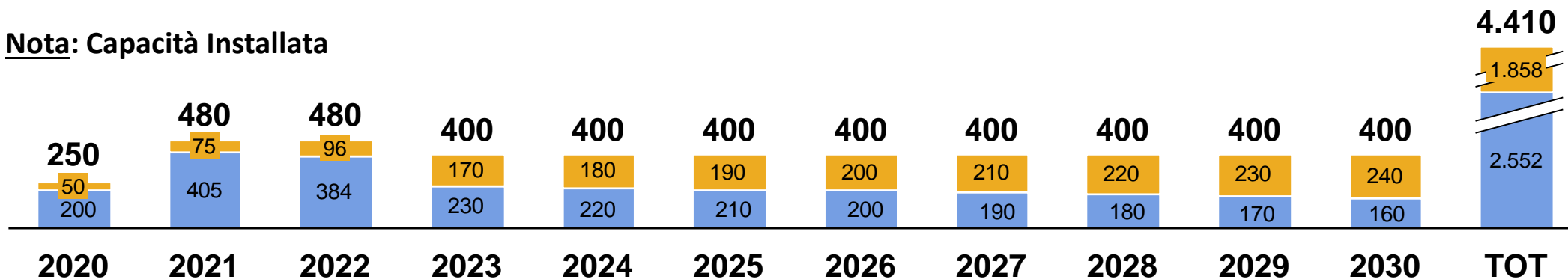


2.500 MW/y

Target Pipeline finalizzato a garantire una Capacità in Sviluppo di circa il 30% Target SEN - Utility Scale (circa 10% Target SEN complessivo)

MW

Nota: Capacità Installata



Lo Scenario senza Asta prevedeva una Capacità annua flat pari a circa 350 MW

- Distribuzione in aumento della Capacità nei primi anni vs scenario no aste per cogliere opportunità di prezzo aste vs prezzo merchant
- Preponderanza del Wind rispetto al PV nei primi 3 anni dovuta a:
 - Maggiore presenza sul mercato di progetti autorizzati Wind rispetto al PV
 - Attuale Struttura Costi interni realizzazione PV meno competitiva rispetto al Wind
 - Successivamente aumento percentuale di Sviluppo PV per futura ottimizzazione dei costi di realizzazione impianti

* Target SEN al 2030: +40 GW (di cui 16 GW Utility Scale) con scenario: 30 GW PV (di cui 6 GW Utility Scale) + 10 GW WIND

** Previsione di un tasso di mortalità dei progetti pari a ca. 85%

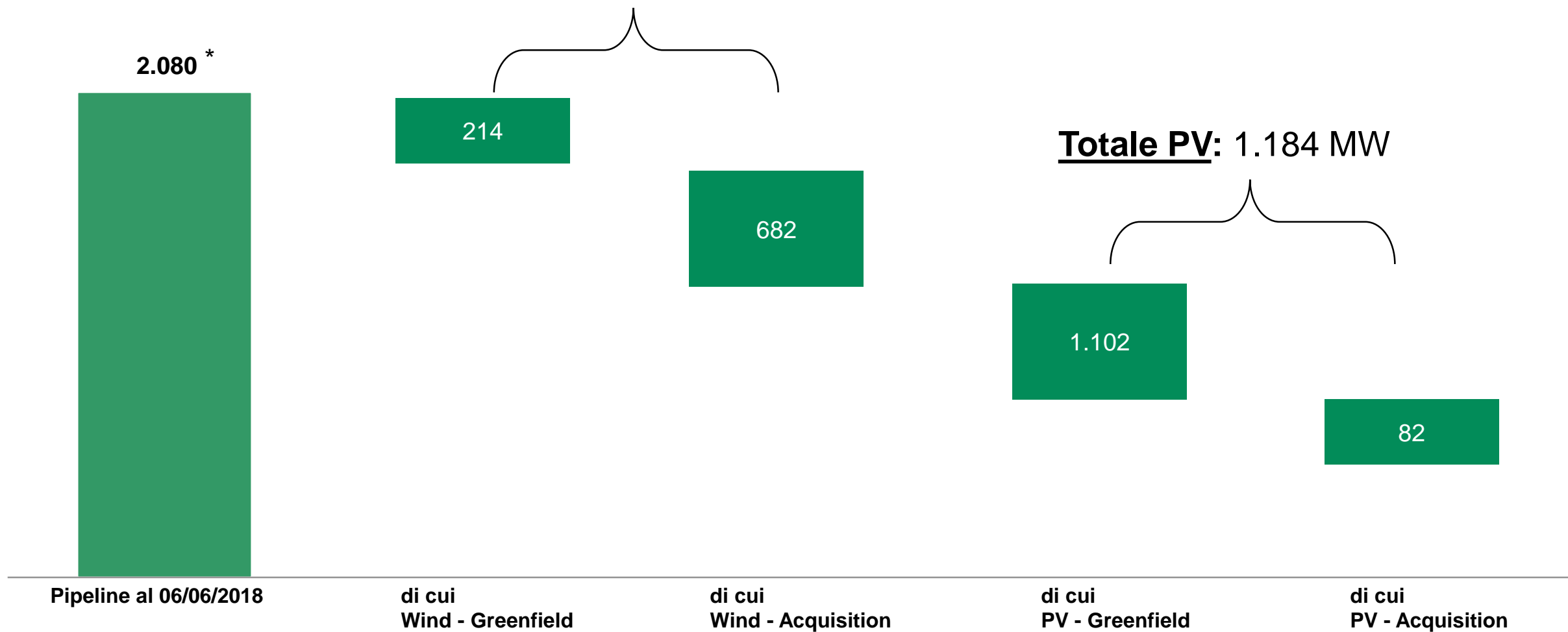
Pipeline Solare & Wind: Greenfield + Acquisition

MW



Totale Wind: 896 MW

Totale PV: 1.184 MW



* 112 progetti (83 PV + 29 WIND)

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BOP impianti solari ed eolici

Situazione anagrafica imprese



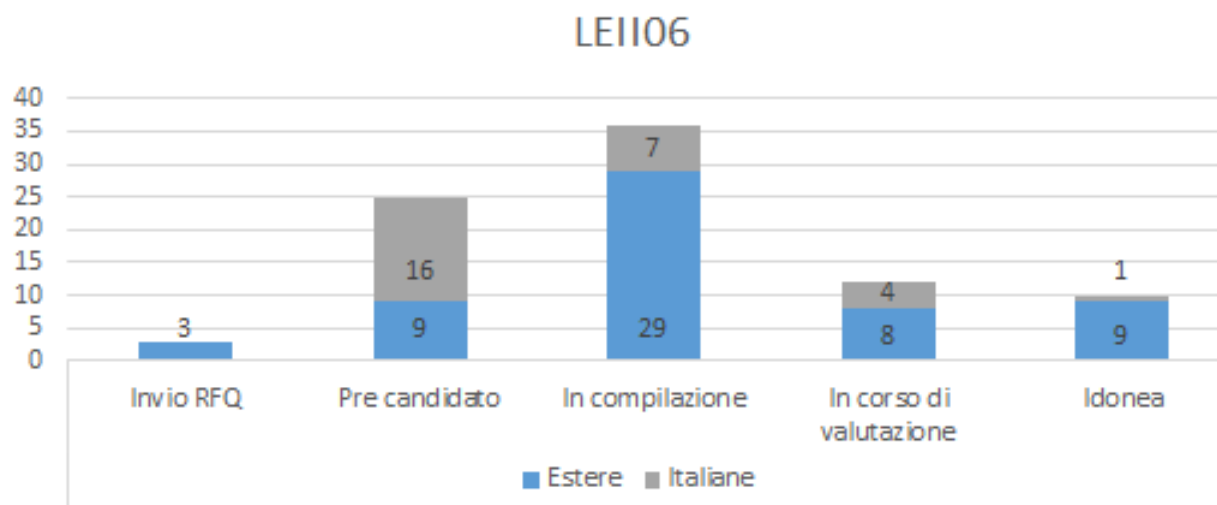
Gruppo Merceologico LEII06

Costruzione Impianti Fotovoltaici

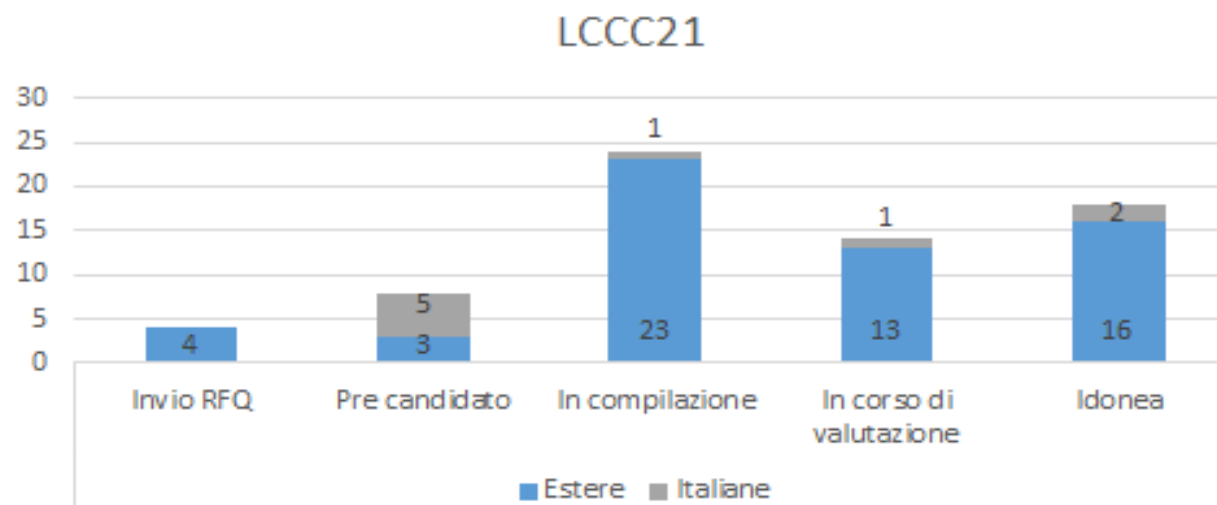


Gruppo Merceologico LCCC21

Opere civili per impianti di generazione eolica



Tot. 86



Tot. 68

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The scope of work of each part

WIND



ITEM	Type of Order	Scope
1	Supply	WTG's
2	Supply	MV Cables & Optic Fiber
3	Supply	MV Cables & Optic Fiber (Subterranean Option)
4	Supply/installation contracts	Main Power Transformer
5	BOP Contract	Civil BOP Contract (roads, platforms, foundations, trenching & cabling)
6	EPC Contract	Electrical EPC Contract (SS, T-Line, Interc. Point)



The scope of work of each part

SOLAR



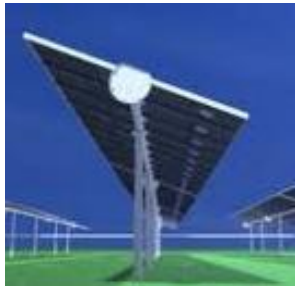
MODULES:

Modules supply DAP



CONVERSION UNIT:

- **Supply DAP Conversion Units + PPC + String boxes**
- **LV/MV Transformer**
- **Positioning/installation** of the CU
- **Electrical Wirings** inside the CU
- **Commissioning and start up** CU



TRACKER

- Execution of **Pull out Test**
- Execution of **Detailed Design**
- **Supply and installation** of the **trackers** (foundation, metallic structure in elevation, motor, control system, meteo station for the tracker)
- **Supply and installation** of the **cable** connecting each controller with the relevant motor
- Supply and Installation of the meteo station
- Supply and positioning of the **Tracker's SCADA** system Commissioning of the trackers



BoP/BoS

- **Design** PV Field
- Panels **installations**
- **Civil** Works
- **Electrical** Works
- **Commissioning** and start up



EPC Substation/T-Line

- **Design** HV/MV Substation and T-Line
- **Full EPC** for the HV/MV **substation**
- **Main SCADA** supply and installation,
- **Full EPC T-Line** Execution
- HV/MV **Trafo** (as optional)