IPTO: ISLANDS INTERCONNECTION STRATEGY

4th International Hybrid Power Systems Workshop

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ADMIE/IPTO – Ariadne Interconnection

Independent Power Transmission Operator
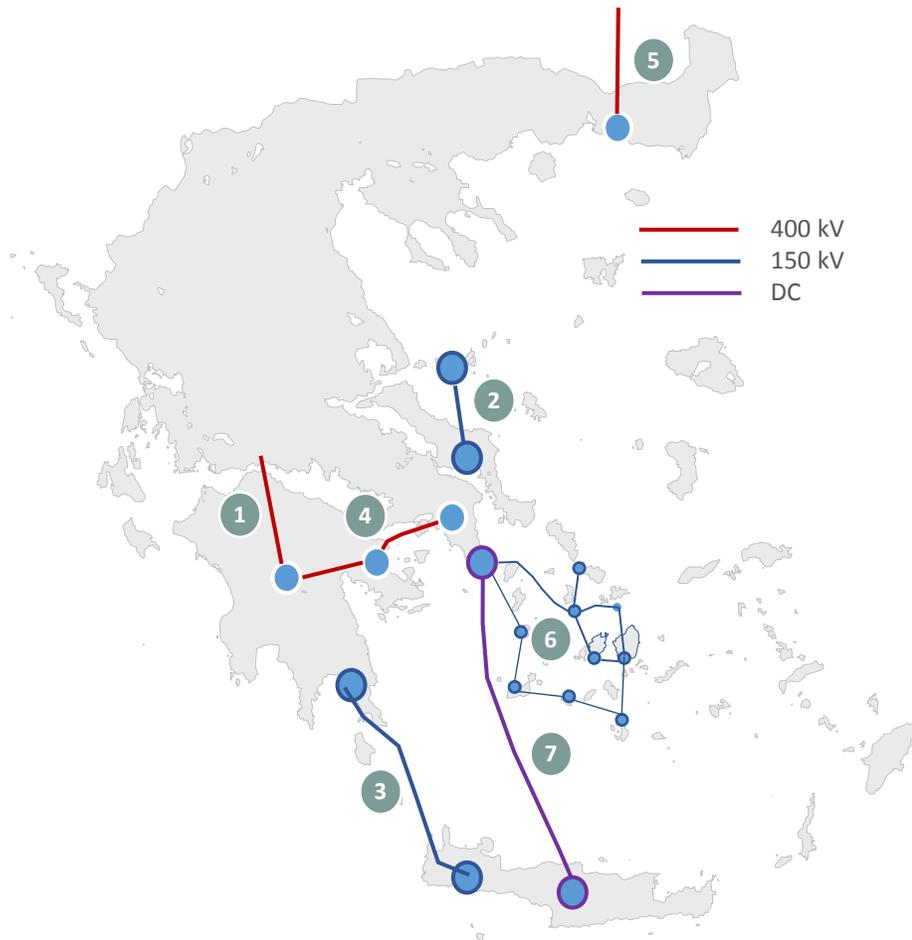**Ανεξάρτητος Διαχειριστής Μεταφοράς Ηλεκτρικής Ενέργειας**

Ariadne Interconnection
ΑΡΙΑΔΝΗ INTERCONNECTION Α.Ε.Ε.Σ.

ΑΔΜΗΕ
ΑΝΕΞΑΡΤΗΤΟΣ ΔΙΑΧΕΙΡΙΣΤΗΣ
ΜΕΤΑΦΟΡΑΣ ΗΛΕΚΤΡΙΚΗΣ ΕΝΕΡΓΕΙΑΣ

ARIADNE
INTERCONNECTION

ADMIE Major Projects

Major Project Locations

ID	Project description	Expected commissioning year
1	First 400 kV branch to Peloponnese (OHL Megalopoli – Patras – Acheloos)	2019
2	Skiathos island interconnection	2021
3	Crete interconnection (Phase I)	2020
4	Second 400 kV branch to Peloponnese (OHL Megalopoli – Korinthos – Koumoundouros)	2024
5	New 400 kV interconnector to Bulgaria N. Santa (GR) – Maritsa (BG)	2023
6	Cycladic Islands interconnection (Phases B', C' and D')	2024 (2019 for Phase B', 2020 for Phace C' and 2024 for Phase D')
7	Crete interconnection (Phase II)	2022

**Source:** TYNDP 2019 – 2028
(under public consultation)

Cycladic Islands Interconnection Phase B'

Project Identity

- Contracts signed: Summer 2018
- Participants: CABLEL, FULGOR, PRYSMIAN, NARI GROUP
- Budget: :~70 Million Euros
- Completion by: end 2019

Technical Characteristics

➢ Paros – Naxos:
AC XLPE cable, 150 kV, 140 MVA, 7.6 km
➢ Naxos – Mykonos:
AC XLPE cable, 150 kV, 140 MVA, 40 km
➢ Livadi – Andros (Upgrade):
AC XLPE cable, 150 kV, 200 MVA, 14.5 km
➢ Tinos – Livadi (Upgrade):
AC XLPE cable, 150 kV, 200 MVA, 4 km
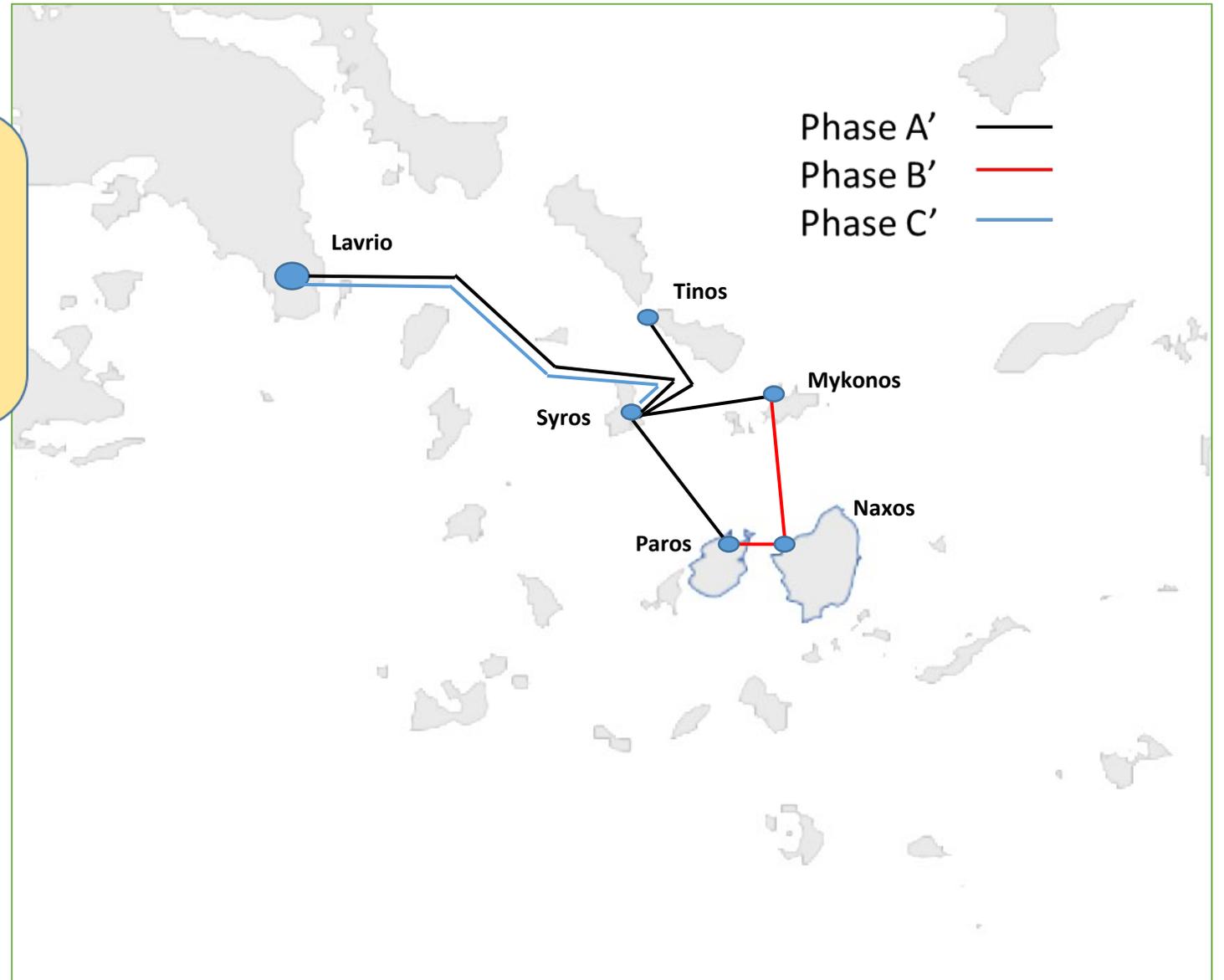➢ 1 GIS Substation at Naxos
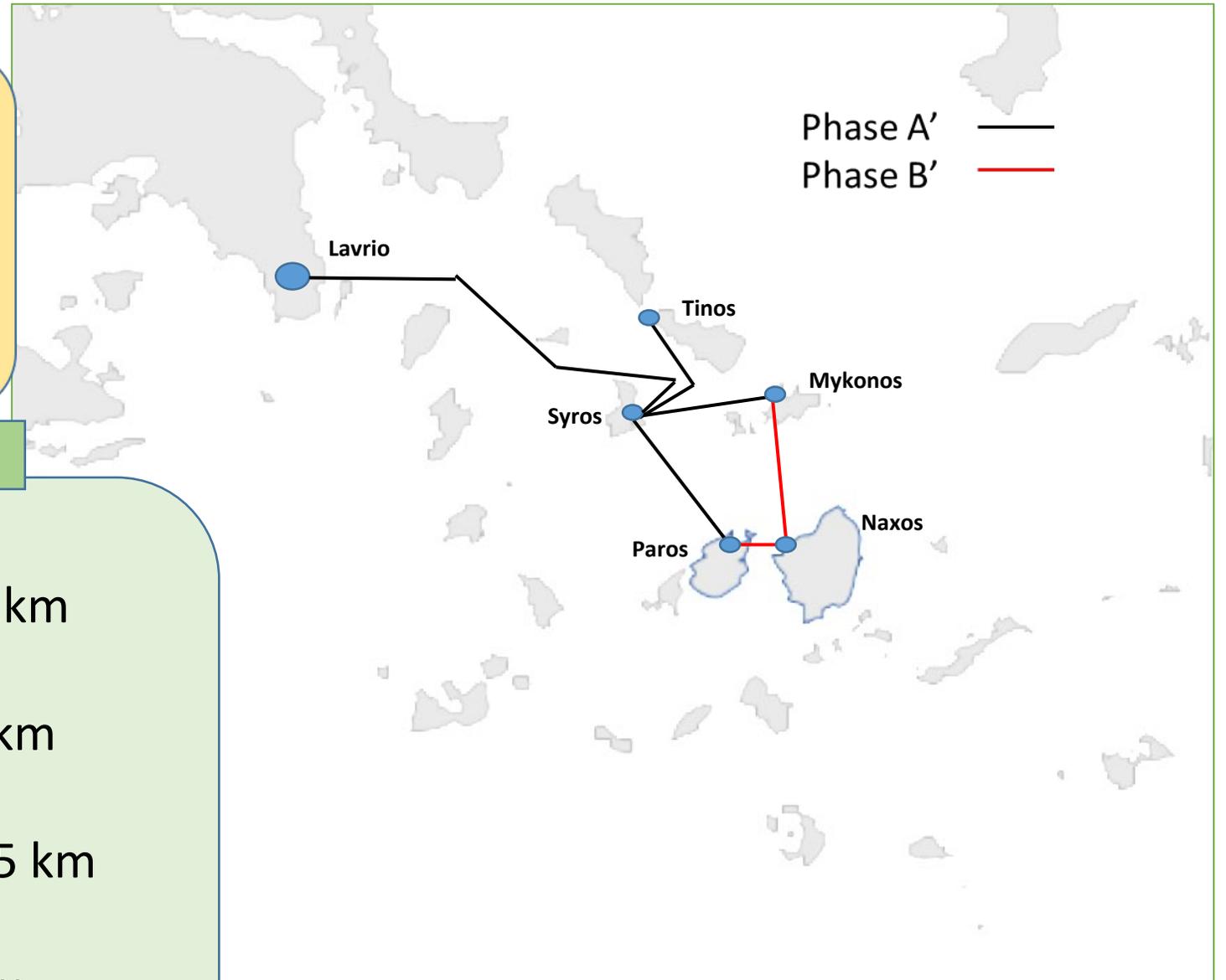
Cycladic Islands Interconnection Phase C'

Project Identity

- Contracts signed: December 2018
- Participants: NEXANS
- Budget: :~115 Million Euros
- Completion by: end 2020

Technical Characteristics

- Lavrio – Syros (2nd cable)
- Voltage: 150 kV
- Capacity: 200 MVA
- Cable technology: XLPE
- Maximum depth: ~300 m
- Cable length: 108 km

Cycladic Islands Interconnections Phase D'

Project Identity

- Budget: 390 MEuros
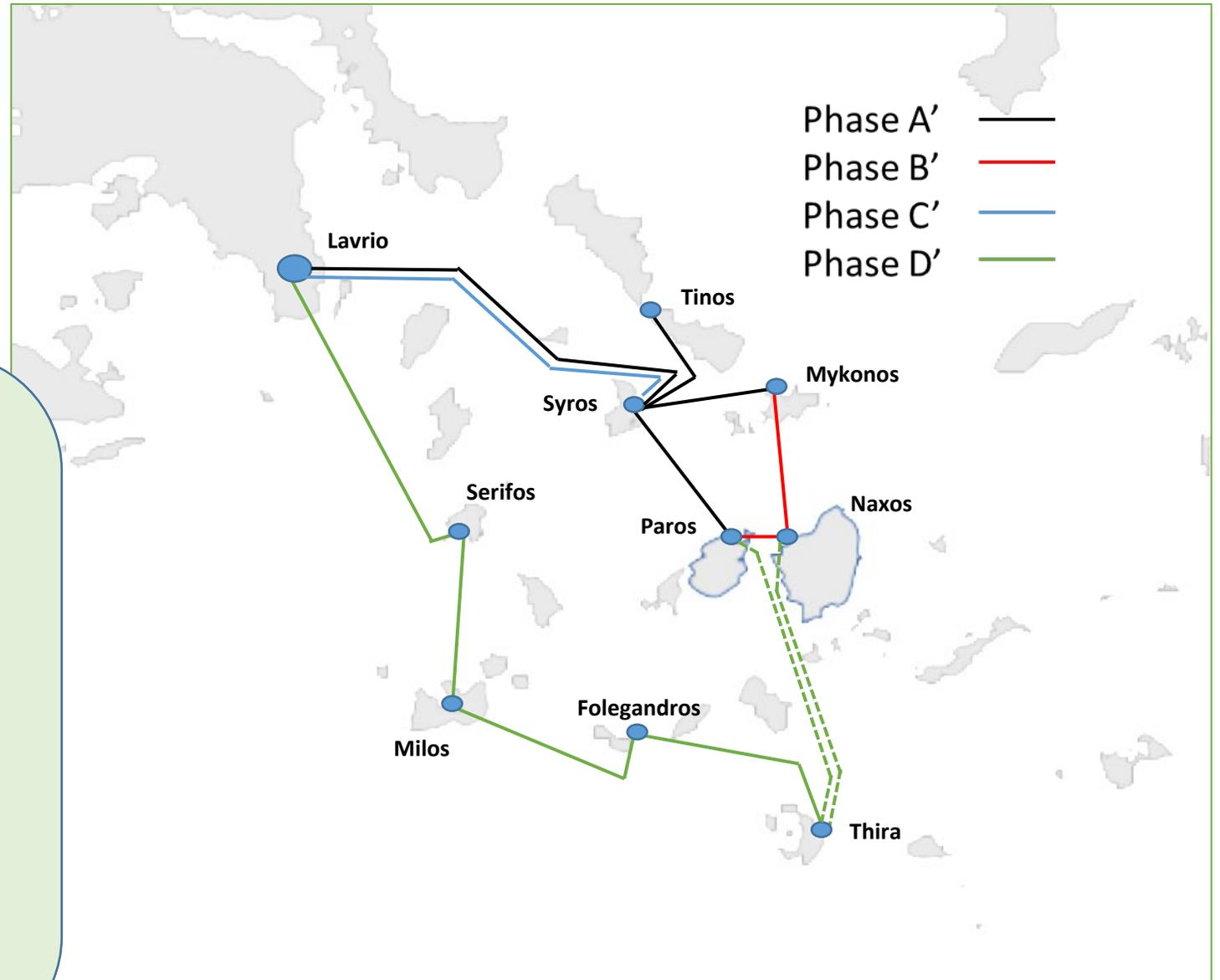- Start by: 2021
- Completion by: 2024

Technical Characteristics

AC XLPE cables 150 kV, 200 MVA, total length ~340 km

- Naxos – Thira **or** Paros – Thira
- Thira – Folegandros
- Folegandros – Milos
- Milos – Serifos
- Serifos – Lavrio

4 GIS Substations

- Thira
- Folegandros
- Milos
- Serifos

Crete Interconnection – Phase I

The longest AC interconnection worldwide…

…includes the upgrade of the Peloponnisos transmission system

Project Identity

o Contracts signed: November 2018
o Participants: CABLEL, FULGOR, NEXANS, TERNA ENERGY
o Budget: : ~330 Million Euros
o Completion by: mid 2020

Technical Characteristics

➤ Voltage: 150 kV AC
➤ 2 GIS Substations
➤ Capacity: 2 x 200 MVA
➤ Cable technology: XLPE
➤ Maximum depth: ~980 m
➤ Cable length: 2 x 135 km

Crete Interconnection – Phase II (ADMIE / Ariadne Interconnection)

Project Identity

- Tender expected: 2019, Q2
- Budget: <1 Billion Euros
- Completion by: 2022, Q3

Technical Characteristics

- VSC MMC Converters
- Voltage: ~500kV
- Bipolar Configuration
- Link Capacity: 2 x 500 MW
- Maximum depth: ~1250m
- Cable length: 2 x 330 km

Similar Projects in Europe

SAPEI: Sardinia-Italy, 1000 MW, 500 kV, LCC, depth 1650 m, 420 km long

MONITA: Italy-Montenegro, 1000 MW, 500 kV, LCC, depth 1200 m, 415 km long

SKAGERRAK IV: Denmark-Norway, 700 MW, 500 kV, VSC, depth 550 m, 137 km long

NORD.LINK: Germany-Norway, 1400 MW, 525 kV, VSC, depth 230 m, 623 km long

NSL: UK-Norway, 1400 MW, 525 kV, VSC, depth 600 m, 730 km long

Islands Interconnection: Main benefits

- **Reliable and stable operation** of the islands with significant benefits for tourism and general economic activity.

- **Reduced environmental impact** on the islands due to the phasing out of autonomous thermal power plants.

- **Reduced energy cost.**

- **Reduced charges** of services of general interest.

- Exploitation of the **wind potential** of the islands.

Thank you very much for your attention!

Any questions or remarks?