

Ørsted

NERC-CIP Applications in Offshore Wind Farms

Ian McCalder, Ørsted Wind Power

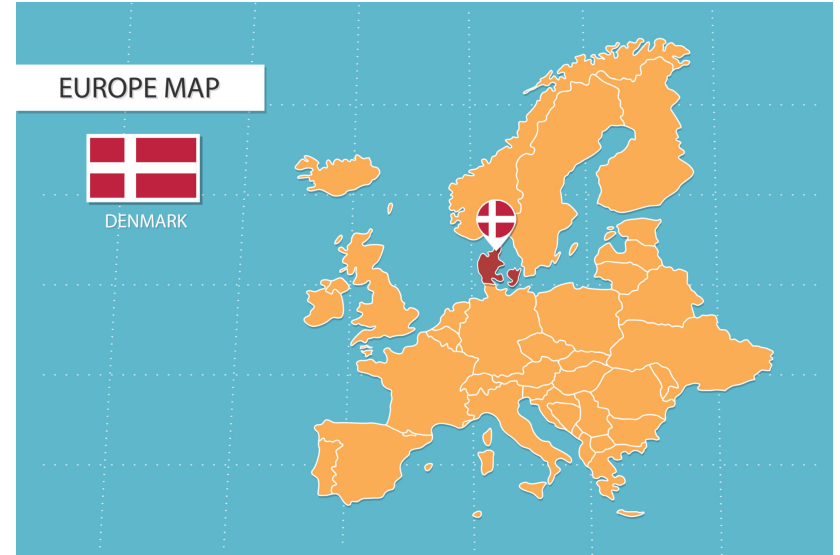
Ørsted at a glance

Headquartered in Fredericia, Denmark

Currently the largest operator of offshore wind power in the world with 8.9 GW of installed generation

Ambitions to hit 30 GW of installed generation capacity by 2030

Currently operating in Denmark, Germany, UK, Netherlands, Taiwan, and the US



Anholt wind farm



Ian, in brief

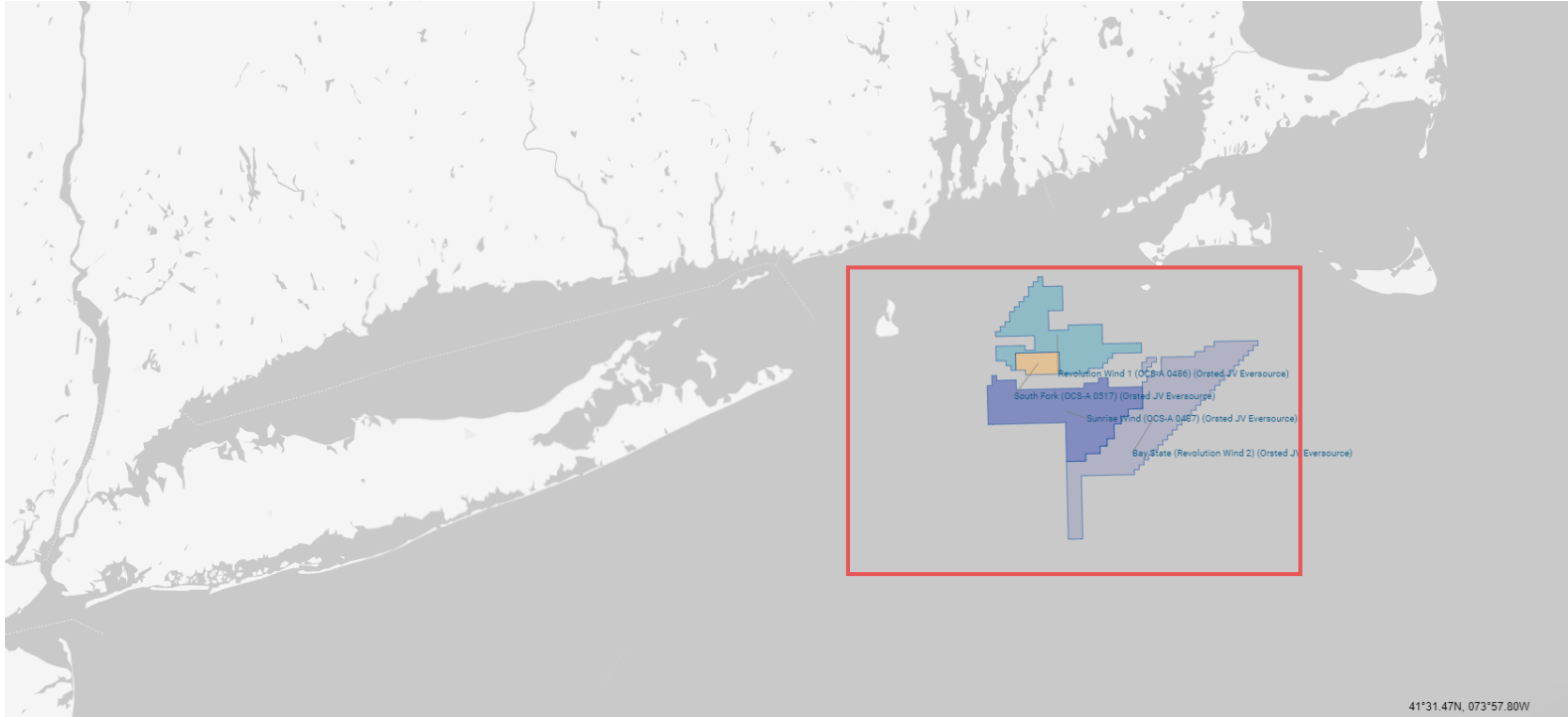


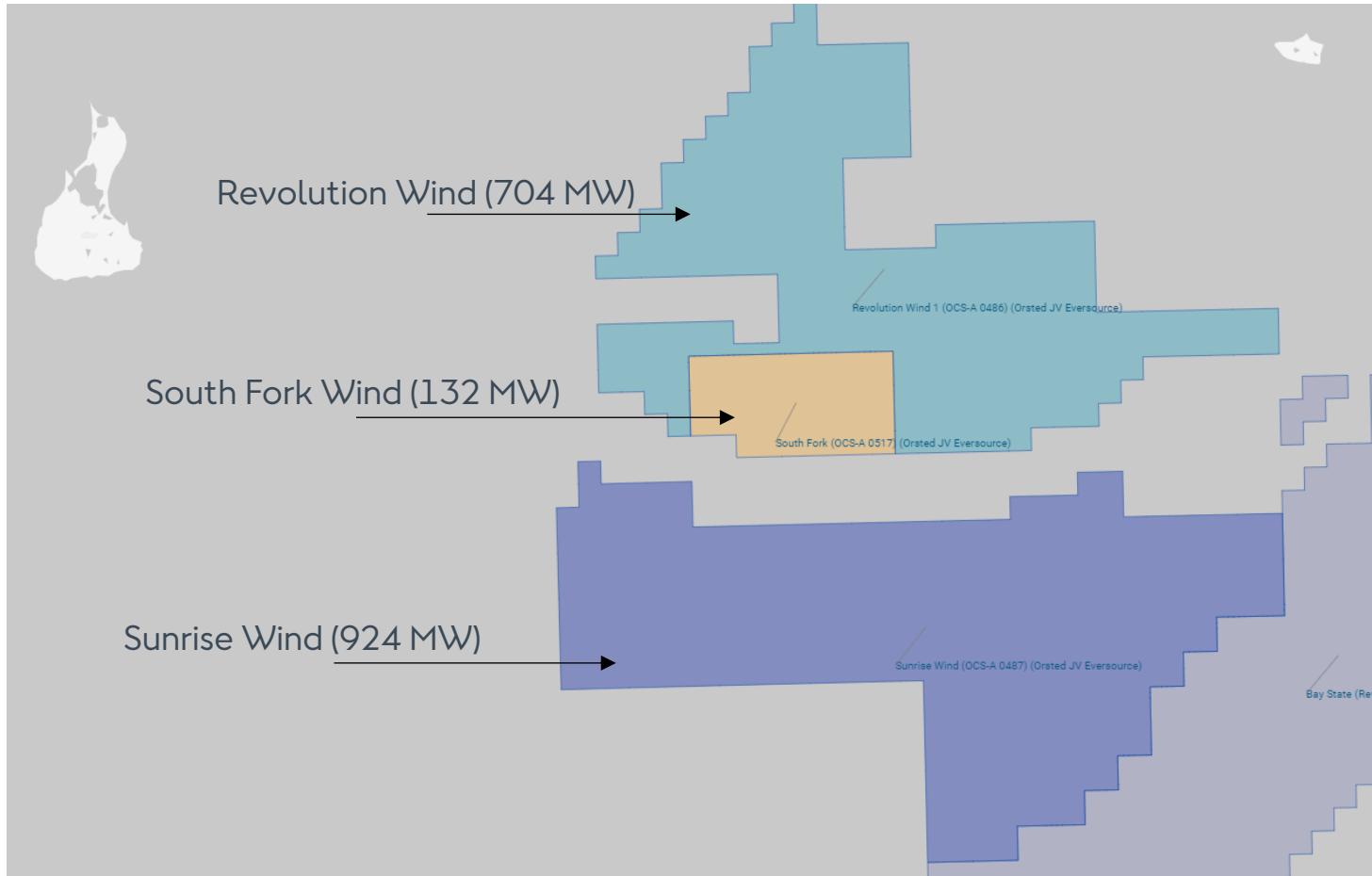
Originally from Canada

Living and working in Denmark since 2014

Degree in Computer Engineering from the University of Alberta

Specialist in high-voltage SCADA systems and technical project management





The Northeast Program



NERC-CIP

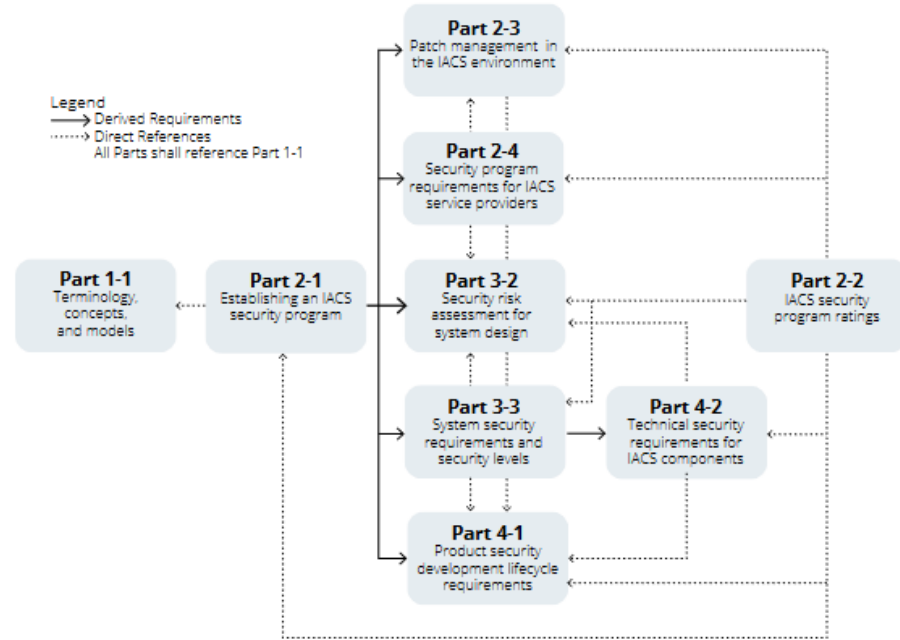


IEC 62443

A family of cybersecurity standards

Promotes a risk-based approach to securing "Zones" connected via "Conduits"

Targeted towards both automation system designers and equipment suppliers



NERC-CIP

North American Energy Reliability Corporation – Critical Infrastructure Protection

CIP is wide-ranging legislation that applies to multiple industrial sectors

NERC-CIP is a series of standards which define, describe, and enforce the requirements laid out in the legislation

NERC CIP essentials

Critical Infrastructure

Asset Classification

Cybersecurity Policies

Electronic Access Controls

Physical Access Controls

Visitor Control Program

Cybersecurity Risks

Cybersecurity Incident Identification-Notification

Cybersecurity Incident Response

Bulk Electric System Recovery Plans

Configuration Management and Monitoring

Bulk Electric System Cyber System Information Protection

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IEC 62443

Born from industry
"best practice"

Not currently a legal
requirement

Enforcement varies
by country

NERC-CIP

Born from legislation

Adherence is a requirement
and enforceable

Formal audits take place on a
set timeline, at least once
every 3 years

Key Takeaways

“No touching” policy for network devices

Audits shall require internal training and preparation

Generation Control Centre must be purpose built to be NERC-CIP compliant

- <https://www.isa.org/standards-and-publications/isa-standards/isa-iec-62443-series-of-standards>
- <https://www.nerc.com/pa/Stand/Pages/Cyber-Security-Permanent.aspx>