Costs for floating export cable material + installation:

This is for a 1 GW plant – should be a 2 GW plant ? Sent an updated equation for a 2 GW plant where the crossover point is closer to 60 km.

**Equation for HVAC 220 kV (blue line in figure below):**

Export cable cost in $/kW = 3.866e-20 x - 4.108e-17 x + 8.763 x + 172.4

**Equation for HVDC 525 kV (orange line, note that National LCOE used 320 kV for HVDC).**

Export cable cost in $/kW = 2.81e-20 x - 2.719e-17 x + 3.834 x + 892

**Combined cost curve (green dashed line, the same as HVDC where HVDC becomes the most economical):**

Export cable cost in $/kW = 7.644e-06 x - 0.01118 x + 8.811 x + 243.8

where x is the export cable length in km.

Chart, line chart

Description automatically generated

**Only including export design:**

Equation for HVAC 220 kV

Export cable cost = - 3.228e-17 x + 6.936 x + 169.4

Equation for HVDC 525 kV:

Export cable cost = - 1.476e-17 x + 2.84 x + 828

where x is the export cable length in km.

Chart, line chart, histogram

Description automatically generatedChart, line chart

Description automatically generated

Figure 1: Cable cost only Figure 2: Cable cost plus installation (duplicated from above)

**Export cable installation only (from ORBIT module):**

HVAC: Export cable installation ($/kW) for XLPE\_1000m\_**220kV**\_dynamic for a 1 GW farm = 23.871572544453286\*distance\*distance\_from\_landfall + 84708397.49227189

HVDC: Export cable installation ($/kW) for HVDC\_2500mm\_**525kV** for a 1 GW farm = 7.161471763335986\*distance\*distance\_from\_landfall + 40324776.55775206

Chart

Description automatically generated Chart, line chart

Description automatically generated

Percent error between model fit and ORBIT output:

Chart

Description automatically generatedChart

Description automatically generated

**Quick check how well the industry-provided installation cost (constant) lines up with ORBIT model output:**

|  |  |
| --- | --- |
|  | Approximate cost ($/kW) at 300 km (random selected point) |
| 1. Cable cost with industry constant added | 2000 |
| 1. Cable cost without industry constant added | 1700 |
| 1. Cable installation cost from ORBIT (300km from shore AND port) | 41 |
| Total 2+3: | 1741 |
| Difference between #1 and #2+#3 | ~260 |