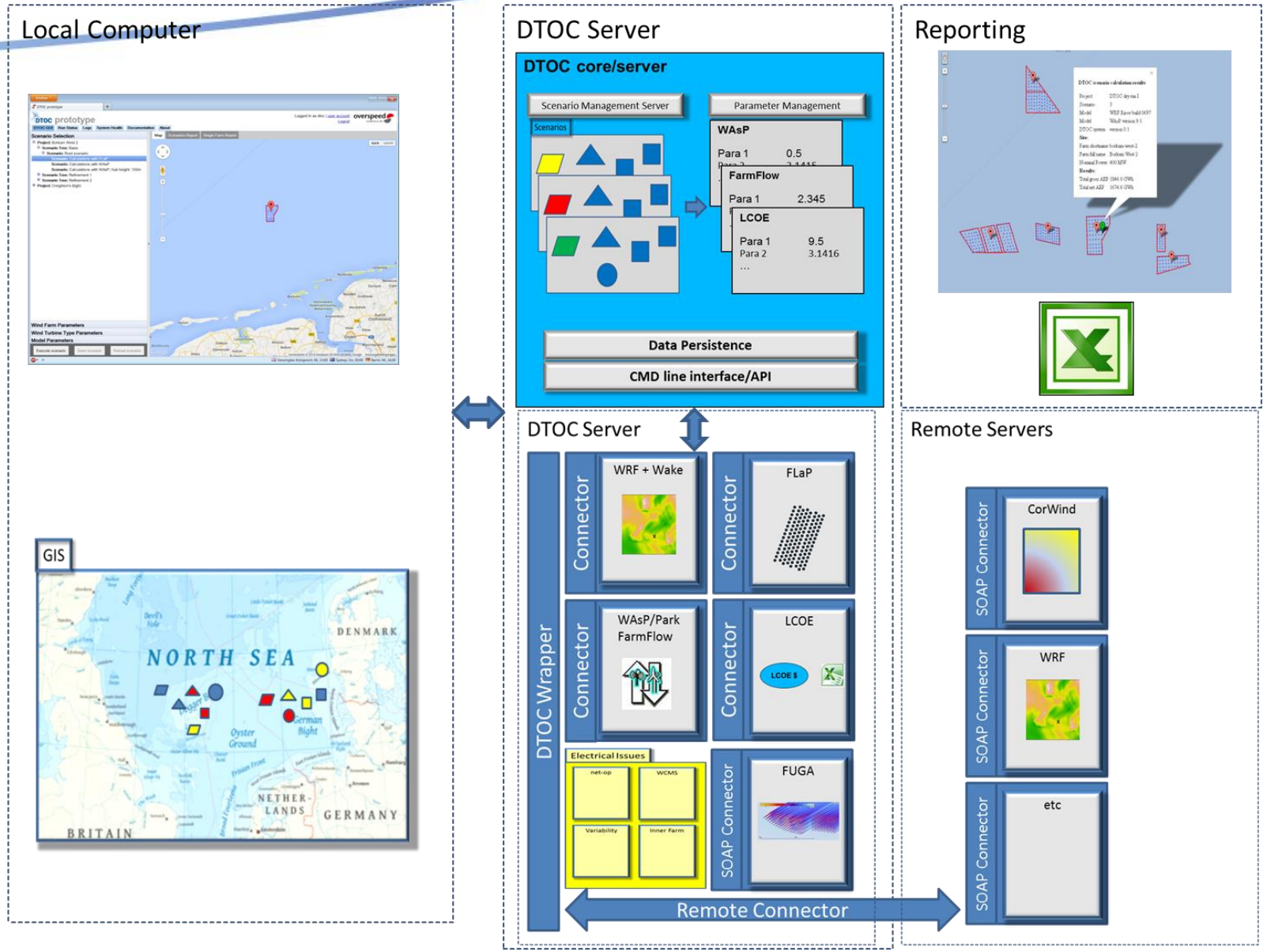
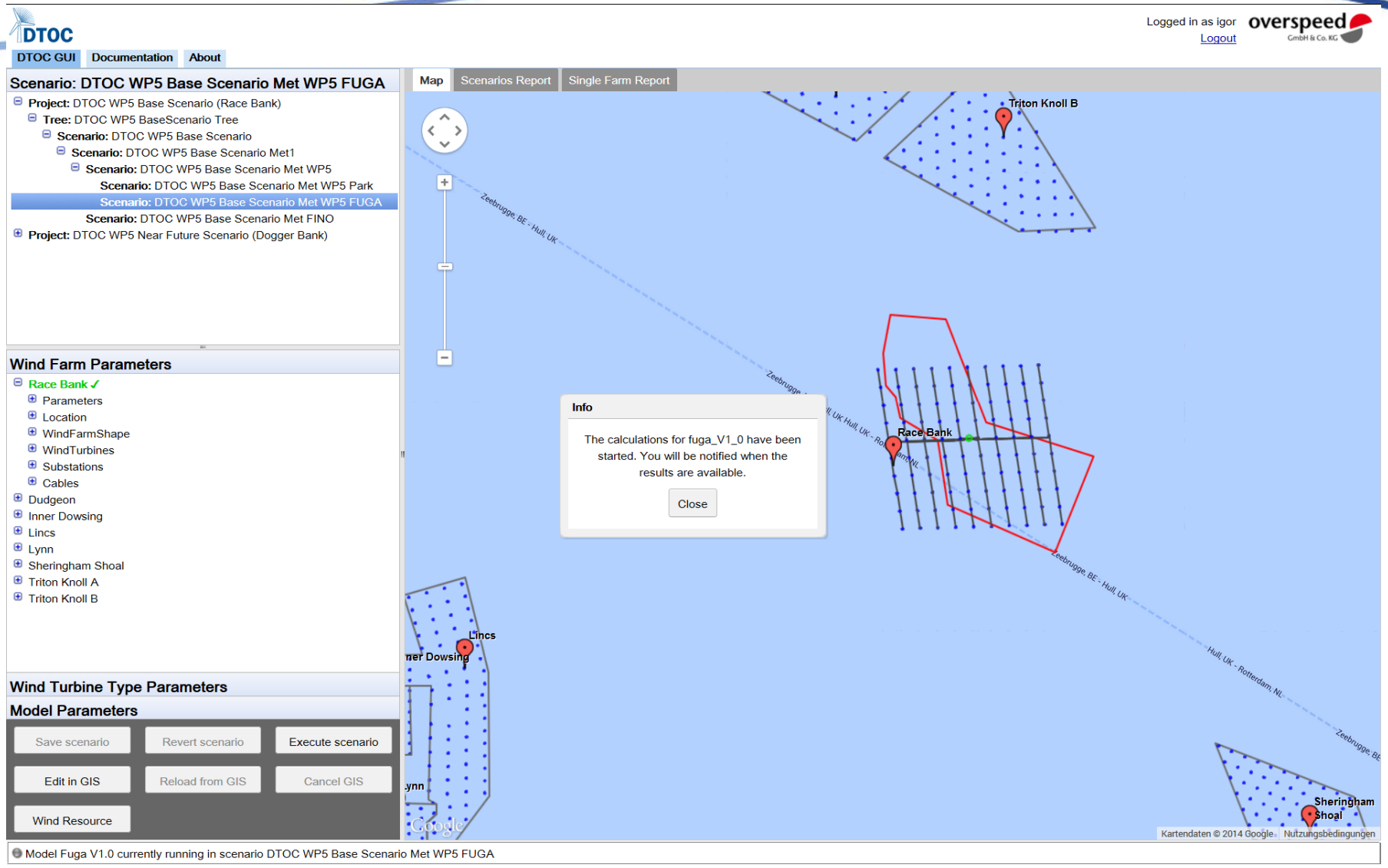
Commercial tool: Wind & Economy

System overview



DTOC GUI


DTOC
DTOC GUI
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Logged in as igor
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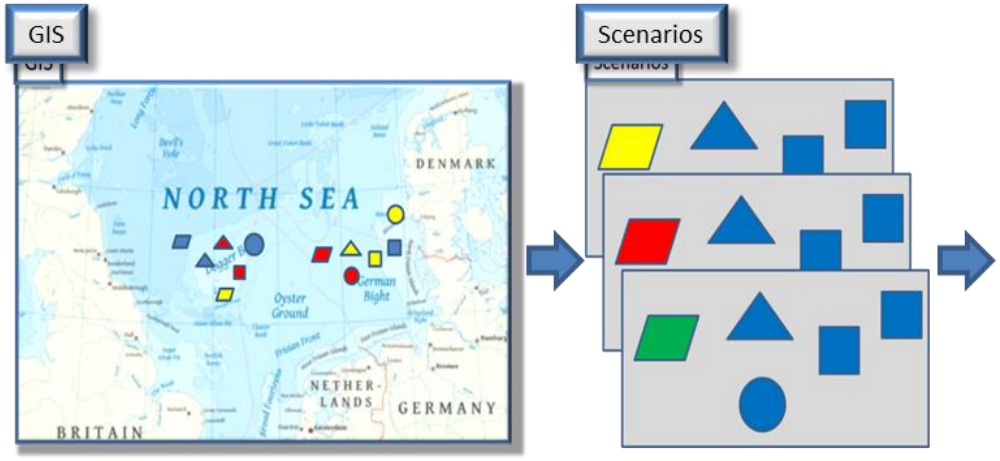
overspeed
Scenario: DTOC WP5 Base Scenario Met WP5 FUGA
Project: DTOC WP5 Base Scenario (Race Bank)
Tree: DTOC WP5 BaseScenario Tree
Scenario: DTOC WP5 Base Scenario
Scenario: DTOC WP5 Base Scenario Met1
Scenario: DTOC WP5 Base Scenario Met WP5
Scenario: DTOC WP5 Base Scenario Met WP5 Park
Scenario: DTOC WP5 Base Scenario Met WP5 FUGA
Scenario: DTOC WP5 Base Scenario Met FINO
Project: DTOC WP5 Near Future Scenario (Dogger Bank)
Wind Farm Parameters
Race Bank ✓
Parameters
Location
WindFarmShape
WindTurbines
Substations
Cables
Dudgeon
Inner Dowsing
Lincs
Lynn
Sheringham Shoal
Triton Knoll A
Triton Knoll B
Wind Turbine Type Parameters
Model Parameters
Save scenario
Revert scenario
Execute scenario
Edit in GIS
Reload from GIS
Cancel GIS
Wind Resource
Map
Scenarios Report
Single Farm Report
Triton Knoll B
Zeebrugge, BE - Hull, UK
Race Bank
Info
The calculations for fuga_V1_0 have been started. You will be notified when the results are available.
Close
Hull, UK - Rotterdam, NL
Lincs
Sheringham Shoal
Google
Kartendaten © 2014 Google
Nutzungsbedingungen
Model Fuga V1.0 currently running in scenario DTOC WP5 Base Scenario Met WP5 FUGA

Scenario approach

- Organizing wind farm variants as scenarios
- Scenario tree: hierarchy
- Inheritance between branches and trees



DTOC

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Scenario: DTOC WP5 Base Scenario Met WP5 FUGA

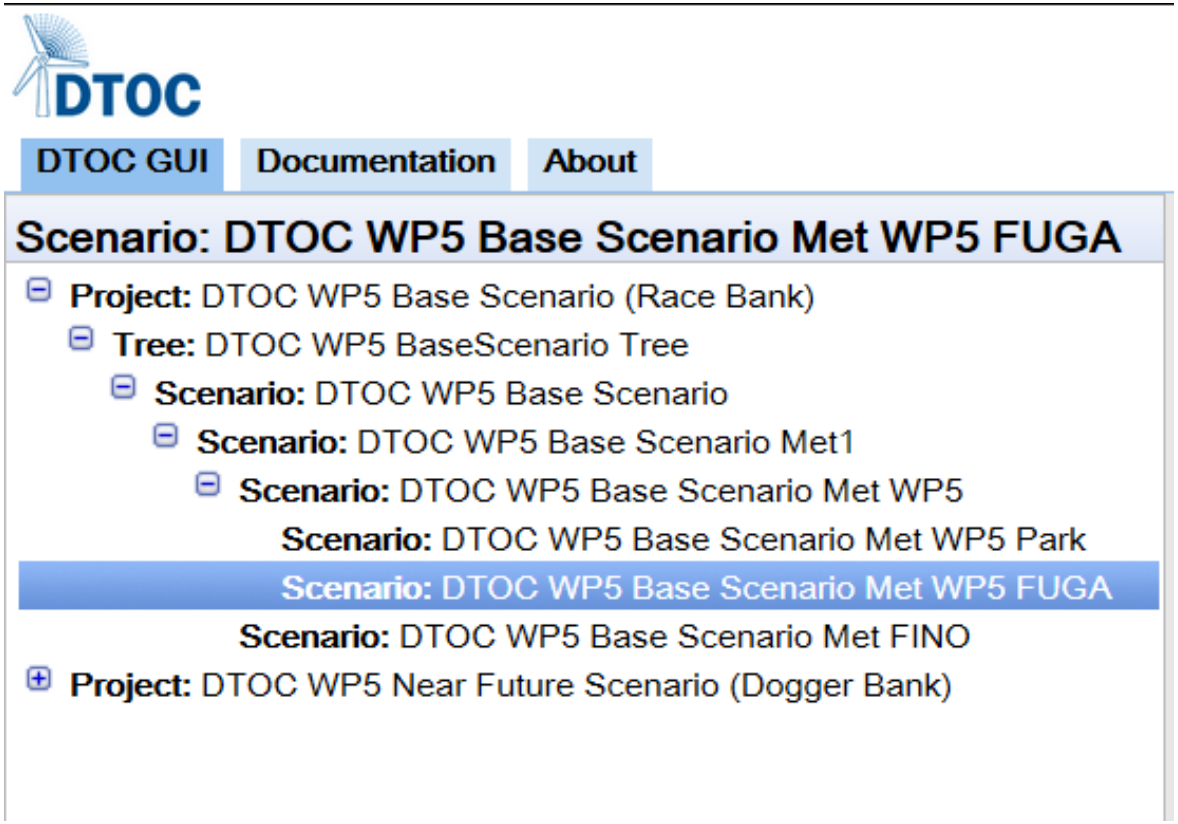
- **Project:** DTOC WP5 Base Scenario (Race Bank)
  - **Tree:** DTOC WP5 BaseScenario Tree
    - **Scenario:** DTOC WP5 Base Scenario
      - **Scenario:** DTOC WP5 Base Scenario Met1
        - **Scenario:** DTOC WP5 Base Scenario Met WP5
          - **Scenario:** DTOC WP5 Base Scenario Met WP5 Park
          - **Scenario:** DTOC WP5 Base Scenario Met WP5 FUGA
          - **Scenario:** DTOC WP5 Base Scenario Met FINO
- **Project:** DTOC WP5 Near Future Scenario (Dogger Bank)

What is a scenario?

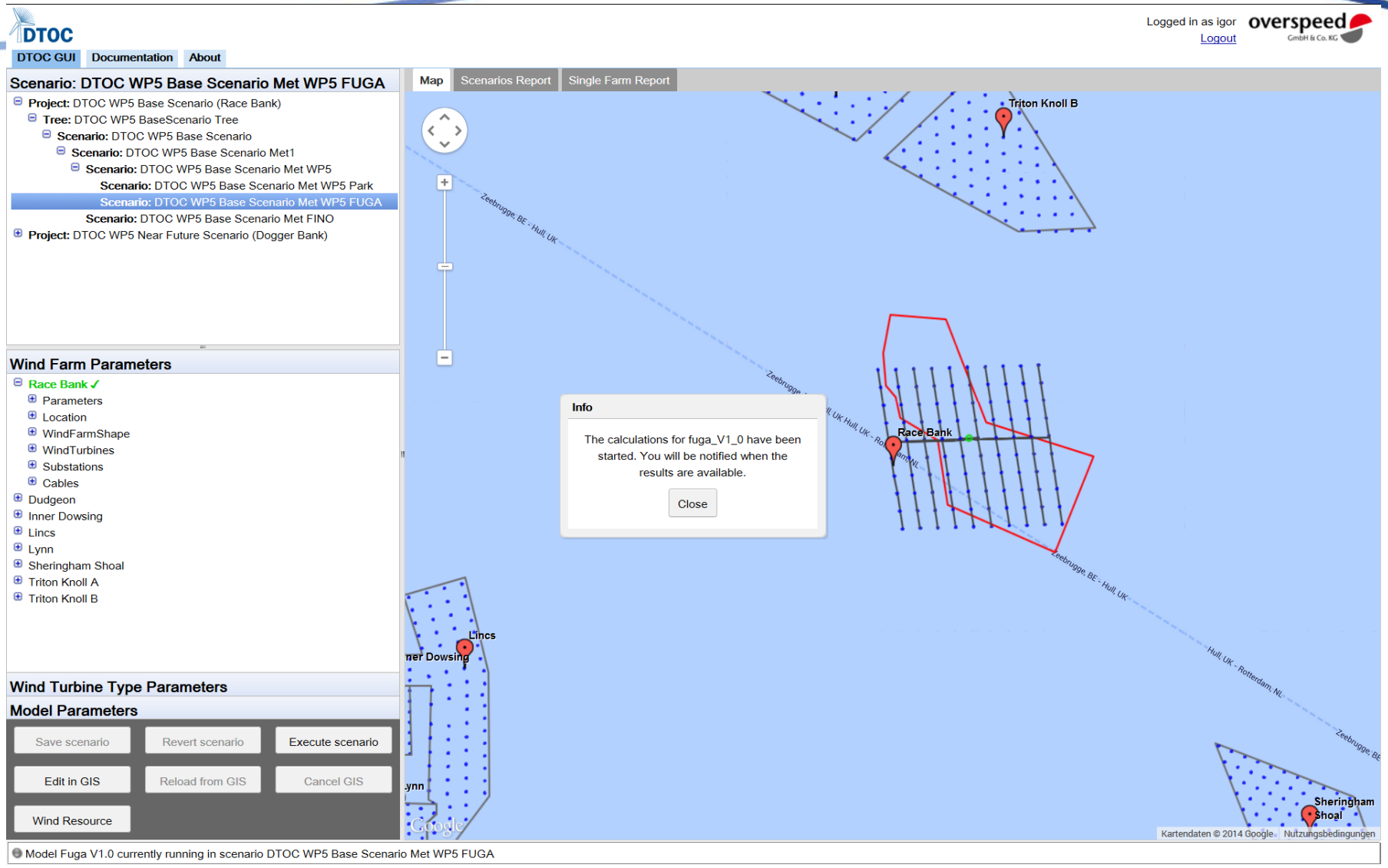
- Wind climate

- Turbinepositions
- Turbinetypes

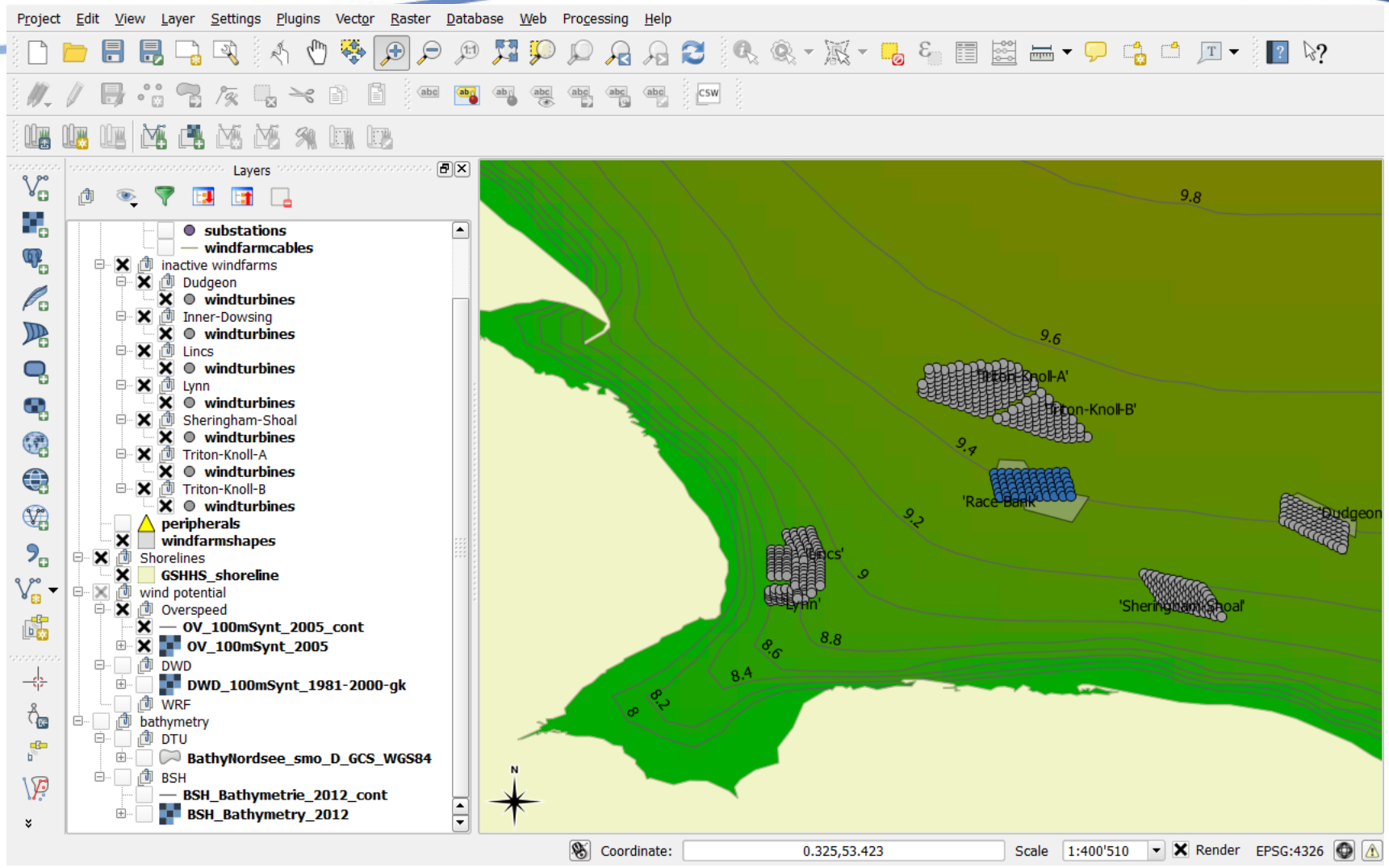
- Model combinations
- Model runs
- Model parameters



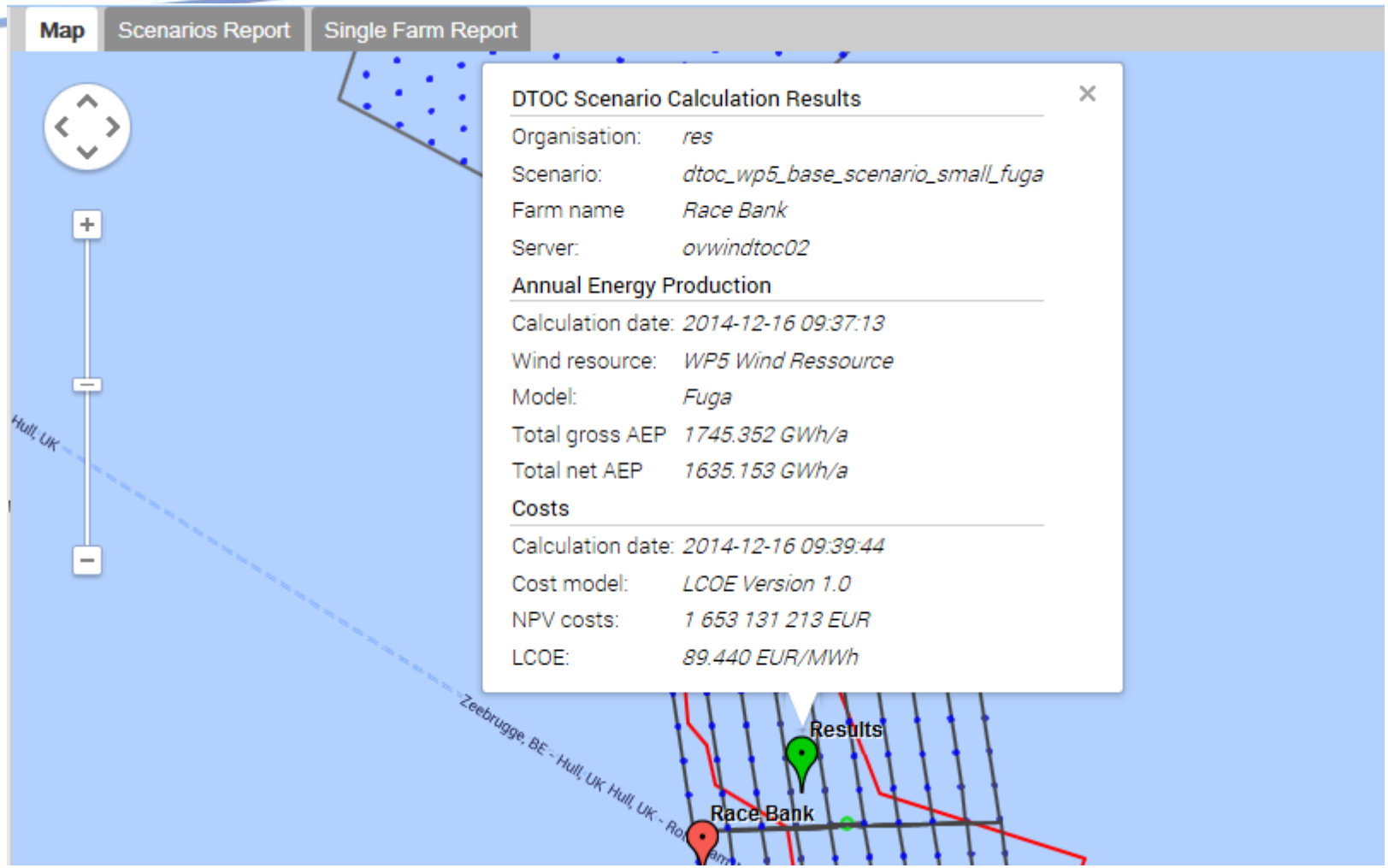
Live: DTOC GUI



DTOC GIS


Project Edit View Layer Settings Plugins Vector Raster Database Web Processing Help
Layers
substations
windfarmcables
inactive windfarms
Dudgeon
windturbines
Inner-Dowsing
windturbines
Lincs
windturbines
Lynn
windturbines
Sheringham-Shoal
windturbines
Triton-Knoll-A
windturbines
Triton-Knoll-B
windturbines
peripherals
windfarmshapes
Shorelines
GSHHS_shoreline
wind potential
Overspeed
OV_100mSynt_2005_cont
OV_100mSynt_2005
DWD
DWD_100mSynt_1981-2000-gk
WRF
bathymetry
DTU
BathyNordsee_smo_D_GCS_WGS84
BSH
BSH_Bathymetrie_2012_cont
BSH_Bathymetry_2012
9.8
9.6
9.4
9.2
9
8.8
8.6
8.4
8.2
8
'Race Bank'
Dudgeon
'Sheringham Shoal'
N
Coordinate:
0.325,53.423
Scale
1:400'510
Render
EPSG:4326

Model results



Comparative reporting

DTOC Energy Production Report

23.04.2014

EON, 2014 Reference LCOE: 13.5 ct/kWh

Reference Scenario: BWII - WAsP

	Scenario Shortname	BWII - WAsP *	BWII - FLaP	BWII - WAsP 100m
Comment		Calculations with WAsP	Calculations with FLaP	Calculations with WAsP, hub height: 100m
	Last Update	2014.04.22 14:30	2014.04.22 16:30	2014.04.23 11:05
Turbines				
	Turbine Manufacturer	Areva	Areva	Areva
	Turbine Type	M5000	M5000	M5000
	Nominal Power [kW]	5000	5000	5000
	Rotor Diameter [m]	116	116	116
	Hub Height [m]	90	90	100
Farm				
	Number of Turbines	80	80	80
	Nominal Power Wind Farm [MW]	400	400	400
Results				
	AEP Gross [GWh/a]	1'758.2	1'747.6	1'846.1
	AEP Farm [GWh/a]	1'613.8	1'600.9	1'702.6
	AEP Net [GWh/a]	1'495.0	1'483.1	1'577.1
	Capacity Factor [%]	46.1%	45.7%	48.6%
	Wind Farm Efficiency	91.8%	91.6%	92.2%
	Availability	96.0%	96.0%	96.0%
	Electrical Losses	3.50%	3.50%	3.51%
	LCOE [Cent/kWh]	13.5	13.4	14.2
	LCOE [%]	**+100.00%**	**+99.20%**	**+105.50%**
	delta LCOE [%]	**+0.00%**	**-0.80%**	**+5.50%**