Run title	-->	hybrid scenario example
PROCESS Version	-->	1.0.16
Date:	-->	24/09/2019
Time:	-->	14:43
User:	-->	apearce
Optimising:	-->	Plasma major radius

Plasma composition:
Number densities relative to electron density:

D + T	= 0.8389
He	= 0.0663
Xe	= 0.0005182
W	= 5e-05

Colour Legend:
ITR
OP

Geometry:

R_0	= 9.656 m
a	= 3.115 m
A	= 3.1
κ_{95}	= 1.65
δ_{95}	= 0.3333
Surface area	= 1655 m^2
Plasma volume	= 3109 m^3
No. of TF coils	= 16
inboard blanket+shield	= 1.055 m
ouboard blanket+shield	= 1.782 m
Fusion power	= 1911 MW

Physics:

I_p	= 16.64 MA
Vacuum B_T at R_0	= 5.924 T
q_{95}	= 4.5
β_N, thermal	= 2.185 % m T MA^{-1}
β_N, total	= 2.768 % m T MA^{-1}
β_P, thermal	= 1.269
β_P, total	= 1.608
$< t_e >$	= 13.75 keV
$< n_e >$	= 5.916e+19 m^{-3}
$< n_{e,\text{line}} > / n_G$	= 1.2
$T_{e0} / < T_e >$	= 2.314
$n_{e0} / < n_{e,\text{vol}} >$	= 1.315
Z_{eff}	= 2.539
$n_Z / < n_{e,\text{vol}} >$	= 0.0005682
τ_e	= 3.602 s
H-factor	= 1.2
Scaling law	= IPB98(y,2)

Coil currents etc:

PF 1	= 11.26 MA
PF 3	= -8.243 MA
PF 5	= -5.373 MA
Startup flux swing	= 370.7 Wb
Available flux swing	= -522.3 Wb
Burn time	= 2 hrs

TF coil type is WST Nb3Sn

Peak field at conductor (w. rip.)	= 13.15 T
I/I_{crit}	= 0.5972
TF Temperature margin	=ERROR! Var missing
CS Temperature margin	= 6.066 K
Conduit Von Mises stress	= 5.038e+08 Pa
Case Von Mises stress	= 5.8e+08 Pa
Allowable stress	= 5.8e+08 Pa
Mass per TF coil	= 2.012e+06 kg

Power flows:

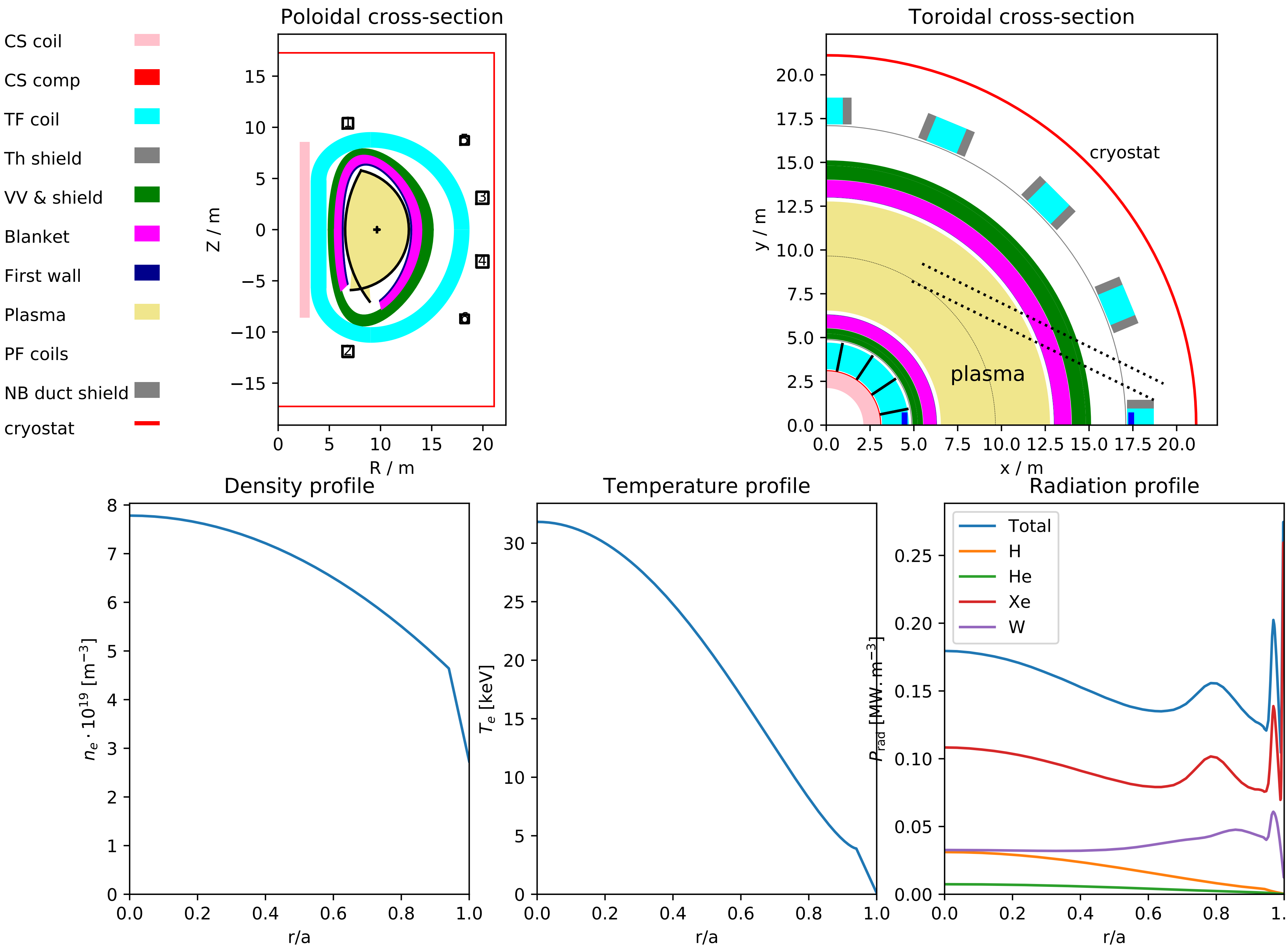
Nominal neutron wall load	= 0.8489 MW m^{-2}
Normalised radius of 'core' region	= 0.75
Electron density at pedestal	= 4.641e+19 m^{-3}
r/a at density pedestal	= 0.94
Helium fraction	= 0.0663
Core radiation	= 123.6 MW
Total radiation	= 276.2 MW
Nuclear heating in blanket	= 1461 MW
Nuclear heating in shield	= 1.519 MW
Power to divertor	= 209.2 MW
H-mode threshold	= 119.5 MW
Divertor life	= 3.062 years
Primary (high grade) heat	= 2592 MW
Gross cycle efficiency	= 37.5 %
Net cycle efficiency	= 31.54 %
Gross electric power	= 972 MW
Net electric power	= 200 MW
Fusion-to-electric efficiency $\frac{P_{e,\text{net}}}{P_{\text{fus}}}$	= 10.47 %

Neutral Beam Current Drive:

Steady state auxiliary power	= 121 MW
Power for heating only	= 50 MW
Bootstrap fraction	= 0.434
Auxiliary fraction	= 0.226
Inductive fraction	= 0.34
NB gamma	= 0.3021 10^{20} A W^{-1} m^{-2}
NB energy	= 1000 keV
Plasma heating used for H factor	= 361.8 MW
$\frac{P_{\text{div}}}{R_0}$	= 21.66 MW m^{-1}
$\frac{P_{\text{div}}}{<n> R_0}$	= 36.62 $\times 10^{-20}$ MW m^2
$\frac{P_{\text{div}}}{P_{\text{LH}}}$	= 1.75
H* (non-rad. corr.)	= 1.065

Costs

Cost of electricity	=ERROR! Var missing



CS coil
CS comp
TF coil
Th shield
VV & shield
Blanket
First wall
Plasma
PF coils
NB duct shield
cryostat
Poloidal cross-section
Z / m
R / m
Toroidal cross-section
cryostat
plasma
y / m
x / m
Density profile
$n_e \cdot 10^{19}$ [m^{-3}]
r/a
Temperature profile
T_e [keV]
r/a
Radiation profile
Total
H
He
Xe
W
P_{rad} [MW.m^{-3}]
r/a