Geometry:

Run title	> Run Title (change this lir	Run Title (change this line using inpthovariable 'runtitle')	
PROCESS Version	on> 1.0.17	a	= 3.263 m
Date:	> 26/08/2020	А	= 3.1
Time:	> 13:54	K ₉₅	= 1.65
User:	> apearce	δ_{95}	= 0.3333
Optimising:	> Plasma major radius	Surface area	$= 1817 \text{ m}^2$
Plasma composition	on:	Plasma volume	$= 3574 \text{ m}^3$
Number densities relative to electron density:		No. of TF coils	= 16
D + T	= 0.8251	inboard blanket+shield	= 1.055 m
He	= 0.07254	ouboard blanket+shield	= 1.782 m
Xe	= 0.0005414	Fusion power	= 2111 MW
W	= 5e-05		

Colour Legend:

ITR OP

Coil currents etc:

PF 1	= 11.15 MA
PF 3	= -8.688 MA
PF 5	= -5.641 MA
Startup flux swing	= 412.3 Wb
Available flux swing	= -569.6 Wb
Burn time	= 2 hrs

TF coil type is WST Nb3Sn

Peak field at conductor (w. rip.)	= 13.05 T
I/I _{crit}	= 0.6015
TF Temperature margin	= 1.5 K
CS Temperature margin	= 6.605 K
TF Cond max TRESCA stress	= 509.7 MPa
TF Case max TRESCA stress	= 580 MPa
Allowable stress	= 580 Pa
Mass per TF coil	= 2.397e + 06 kg

Power flows:

P	ower flows:		
	Nominal neutron wall load	$= 0.8546 \text{ MW m}^{-2}$	
	Normalised radius of 'core' region= 0.75		
	Electron density at pedestal	$= 4.49e + 19 \text{ m}^{-3}$	
	r/a at density pedestal	= 0.94	
	Helium fraction	= 0.07254	
	Core radiation	= 145.2 MW	
	Total radiation	= 311.9 MW	
	Nuclear heating in blanket	= 1593 MW	
	Nuclear heating in shield	= 1.792 MW	
	TF cryogenic power	= 49.67 MW	
	Power to divertor	= 216.2 MW	
	Divertor life	= 3.133 years	
	Primary (high grade) heat	= 2856 MW	
	Gross cycle efficiency	= 37.5 %	
	Net cycle efficiency	= 31.5 %	
	Gross electric power	= 1071 MW	
	Net electric power	= 250 MW	
	Fusion-to-electric efficiency $\frac{P_{\text{e, net}}}{P_{\text{fus}}}$	= 11.84 %	

Physics:

= 17.67 MA
= 6.005 T
= 4.5
$= 2.156 \% \text{ m T MA}^{-1}$
$= 2.728 \% \text{ m T MA}^{-1}$
= 1.252
= 1.585
= 14.46 keV
$= 5.724e + 19 \text{ m}^{-3}$
= 1.2
= 2.323
= 1.315
= 2.621
= 0.0005914
= 3.968 s
= 1.2
= 128 MW
= IPB98(y,2)

Neutral Beam Current Drive:

Steady state auxiliary power	= 125.4 MW
Power for heating only	= 50 MW
Bootstrap fraction	= 0.4285
Auxiliary fraction	= 0.2315
Inductive fraction	= 0.34
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NB gamma = $0.3135 \ 10^{20} \ A \ W^{-1} \ m^{-2}$ NB energy = $1000 \ keV$

Plasma heating used for H factor = 382.9 MW $\frac{P_{\text{div}}}{R_0} = 21.37 \text{ MW m}^{-1}$ $\frac{P_{\text{div}}}{R_0} = 37.34 \times 10^{-20} \text{ MW m}^2$ = 1.689

= 1.051

Costs

Cost output not selected

H* (non-rad. corr.)

