## **TECHNOLOGY FACTSHEET**



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y systems are operational world Functional Unit MW	MW	- -	Min Current - - -	-	Min	10,000 - <b>2030</b> 2,000 - -	Мах		<b>2050</b> 10,000 – -		
Functional Unit MW	MW	- -	Min Current - - -	-	Min	10,000 - <b>2030</b> 2,000 - -	Мах		<b>2050</b> 10,000 – -		
MW		- Min	Current - - -	- Max	Min	10,000 - <b>2030</b> 2,000 - -	Мах		<b>2050</b> 10,000 – -		
MW		- Min	Current - - -	- Max	Min	10,000 - <b>2030</b> 2,000 - -	Мах		<b>2050</b> 10,000 – -		
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ear									_		
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eference system assumed here otal PV installations for 2020 ar ntial data have been broken do , the assumed cumulative PV ca eriod up to 2050, the building s GW (Gasunie, 2018). Solar PV f nue to reduce further. ull-load hours are averaged ove 1 to 849 kWh/kWp in year 25 (r nded average: 820 kWh/kWp).	are assumed to r own into capacit capacity potentic sector may cove technology has er the lifetime.	represent arour ity range sectors ial in the Nether ver 66 GWp (50 s been coming d An annual effici ge: 920 kWh/kV	nd 8 GWp, ba s, and that th rlands is 30 C TWh) of whit lown rapidly iency degene Vp). For East	his potential may GWp, based on Pl ch 41 GWp in the in investment co eration of 0.64% c/West-oriented s	be filled eithe BL (2019) (22 C residential se osts and electri makes that ful systems the re	r with South ori GWp on building ctor and 25 GW icity generation II-load hours for duction goes fro	ented systems gs) and Gasunie 'p in the utility cost over the p South-oriente om 890 kWh/k	, or with East/\ 2018 (8 GWp sector. Ground bast years, and d systems decr Wp in year 1 to	Vest oriented ground based -based poter it is expected ease from 99 763 kWh/kV	d systems. For d potential). Fo ntial may amou d that it will 00 kWh/kWp in Vp in year 25	
	nit	0.734					<b>2030</b>		<b>2050</b>		
·		0.704	-	0.764	0.514	-	0.645	0.259	-	0.519	
·		Min	_	Мах	Min	-	Мах	Min	-	Max	
·		Min	0.0144 –	Мах	Min	-	Мах	Min	-	Max	
min. € / ₩W		Min	-	Мах	Min	-	Мах	Min	-	Мах	
Min       -       Max       Min       -       Max       Min       -       Max         The investment costs are taken from public reports (PBL, 2018 and PBL, 2019). These studies aggregate multiple information sources and various checks are performed with market data. The range results from the cost estimates that are defined in seasonal intervals.       Future costs were estimated by applying the projected cost decrease as reported in FhG-ISE (2015), albeit with a newly calibrated starting point for the year 2020, for which detailed estimates exist from SDE++ (2019). For comparison purposes: the widest investment cost range according to this report is 757-892 €2014/kWp in 2020 to 278-606 €2014/kWp by 20. The fixed operational costs reported are taken from SDE++ 2020 (2019) and cover the O&M, metering, insurance and taxes (time-dependent, correlated to investment cost development), connection costs.       Under 'Other costs', some of the cost components missing in the SDE+ were added: costs for societal support, asset management and land or roof lease (these three cost component are not considered in SDE+, which is a result of the chosen system boundaries of the scheme).											
nv T re	mIn. € / MW mIn. € / MW mIn. € / MW mIn. € / MW vestment costs are taken from he range results from the co costs were estimated by app tes exist from SDE++ (2019).	mln. € / MW mln. € / MW mln. € / MW vestment costs are taken from public report he range results from the cost estimates th costs were estimated by applying the proje tes exist from SDE++ (2019). For comparison ed operational costs reported are taken fro	mln. € / MW       0.704         mln. € / MW       Min         mln. € / MW       Min         mln. € / MW       Min         vestment costs are taken from public reports (PBL, 2018 and the range results from the cost estimates that are defined in the range results from the cost estimates that are defined in the costs were estimated by applying the projected cost decretes exist from SDE++ (2019). For comparison purposes: the ed operational costs reported are taken from SDE++ 2020 (2019)	mln. $\notin$ / MW0.734mln. $\notin$ / MW0.704mln. $\notin$ / MW0.008Min-mln. $\notin$ / MW0.0144Min-mln. $\notin$ / MW-Min-vestment costs are taken from public reports (PBL, 2018 and PBL, 2019)The range results from the cost estimates that are defined in seasonal incosts were estimated by applying the projected cost decrease as reported sexist from SDE++ (2019). For comparison purposes: the widest invested operational costs reported are taken from SDE++ 2020 (2019) and comparison from SDE++ 2020 (2019)	mln. € / MW       0.734         0.704       -       0.764         mln. € / MW       0.008       Min         mln. € / MW       0.0144       Min         mln. € / MW       -       Max         costs are taken from public reports (PBL, 2018 and PBL, 2019). These studies age the range results from the cost estimates that are defined in seasonal intervals.         costs were estimated by applying the projected cost decrease as reported in FhG-ISE (20 tes exist from SDE++ (2019). For comparison purposes: the widest investment cost range ed operational costs reported are taken from SDE++ 2020 (2019) and cover the O&M, max	mln. $\notin$ / MW0.734mln. $\notin$ / MW0.704-0.7640.514mln. $\notin$ / MW0.008Min-MaxMinmln. $\notin$ / MW0.0144Min-MaxMinmln. $\notin$ / MW-MaxMin-MaxMinmln. $\notin$ / MW-Min-MaxMinrestment costs are taken from public reports (PBL, 2018 and PBL, 2019). These studies aggregate multiple range results from the cost estimates that are defined in seasonal intervals.costs were estimated by applying the projected cost decrease as reported in FhG-ISE (2015), albeit wites exist from SDE++ (2019). For comparison purposes: the widest investment cost range according to ed operational costs reported are taken from SDE++ 2020 (2019) and cover the O&M, metering, insura pment), connection costs.	mln. $\notin$ / MW0.7340.580mln. $\notin$ / MW0.704-0.7640.514-mln. $\notin$ / MW0.0080.0080.008Min-MaxMin-mln. $\notin$ / MW0.01440.0139Min-MaxMin-mln. $\notin$ / MWMin-MaxMin-restment costs are taken from public reports (PBL, 2018 and PBL, 2019). These studies aggregate multiple information-'he range results from the cost estimates that are defined in seasonal intervals.costs were estimated by applying the projected cost decrease as reported in FhG-ISE (2015), albeit with a newly calibtes exist from SDE++ (2019). For comparison purposes: the widest investment cost range according to this report is 75costs metering, insurance and taxes (report), connection costs.	mln. € / MW       0.734       0.580         mln. € / MW       0.008       0.008         Min       -       0.764       0.514       -       0.645         mln. € / MW       0.008       0.008       0.008       0.008         Min       -       Max       Min       -       Max         mln. € / MW       0.0144       0.0139       0.0139         Min       -       Max       Min       -       Max         mln. € / MW       -       -       Max       Min       -       Max         vestment costs are taken from public reports (PBL, 2018 and PBL, 2019). These studies aggregate multiple information sources and vare the range results from the cost estimates that are defined in seasonal intervals.       -       Max         costs were estimated by applying the projected cost decrease as reported in FhG-ISE (2015), albeit with a newly calibrated starting protest is report SDE++ (2019). For comparison purposes: the widest investment cost range according to this report is 757-892 €2014/k ed operational costs reported are taken from SDE++ 2020 (2019) and cover the O&M, metering, insurance and taxes (time-depender pment), connection costs.       'Other costs', some of the cost components missing in the SDE+ were added: costs for societal support, asset management and land	mln. € / MW       0.734       0.580         mln. € / MW       0.704       -       0.764       0.514       -       0.645       0.259         mln. € / MW       0.008       0.008       0.008       0.008       0.008       0.0149         mln. € / MW       0.0144       0.0139       0.0139       0.0144       0.0139       0.0139         mln. € / MW       0.0144       0.0139       -       Max       Min       -       Max       Min         mln. € / MW       -       Max       Min       -       Max       Min       -       Max       Min         estment costs are taken from public reports (PBL, 2018 and PBL, 2019). These studies aggregate multiple information sources and various checks a the range results from the cost estimates that are defined in seasonal intervals.       -	mln. € / MW       0.734       0.580       0.389         0.704       -       0.764       0.514       -       0.645       0.259       -         mln. € / MW       0.008       0.008       0.008       0.008       0.008         Min       -       Max       Min       -       Max       Min       -         mln. € / MW       0.0144       0.0139       0.0133       Min       -       Max       Min       -         mln. € / MW       0.0144       0.0139       0.0133       Min       -       Max       Min       -         win       -       Max       Min       -       Max       Min       -       -         win       -       Max       Min       -       Max       Min       -       -         westment costs are taken from public reports (PBL, 2018 and PBL, 2019). These studies aggregate multiple information sources and various checks are performed the range results from the cost estimates that are defined in seasonal intervals.       - <t< td=""></t<>	

ENERGY IN- AND OUTPUTS												
	Energy carrier	Unit	Current			2030			2050			
Energy carriers (per unit of main output)	Main output: Electricity	DI		-1.00			-1.00			-1.00		
		PJ	-1.00	-	-1.00	-1.00	-	-1.00	-1.00	-	-1.00	
	Solar energy	РJ	1.00		1.00			1.00				
			1.00	-	1.00	1.00	-	1.00	1.00	-	1.00	
		PJ		-			-			-		
			Min	-	Max	Min	-	Max	Min	-	Max	
		PJ		-			-			-		
			Min	-	Мах	Min	-	Max	Min	-	Мах	
8, 1 1	Solar in = 1 and electricity out =											
EMISSIONS (Non-fuel/energy-related en		s (e.g. CCS)	-									
Emissions	Substance	Unit	Current			2030			2050			
				-			-			-	T	
			Min	-	Max	Min	-	Max	Min	-	Max	
				-			-			-		
			Min	_	Max	Min	-	Мах	Min	-	Max	
			0.41	-	8.4.	0.41	-		5.4°	-		
			Min	_	Мах	Min	-	Мах	Min	-	Max	
			0.41	-	A.4.	0.41	-	8.4.	0.41	-		
			Min	-	Max	Min	-	Мах	Min	-	Max	
missions explanation												
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