SPARC.

HOW THE VALUE FLOWS

The plant stays whole. The generator gets paid.

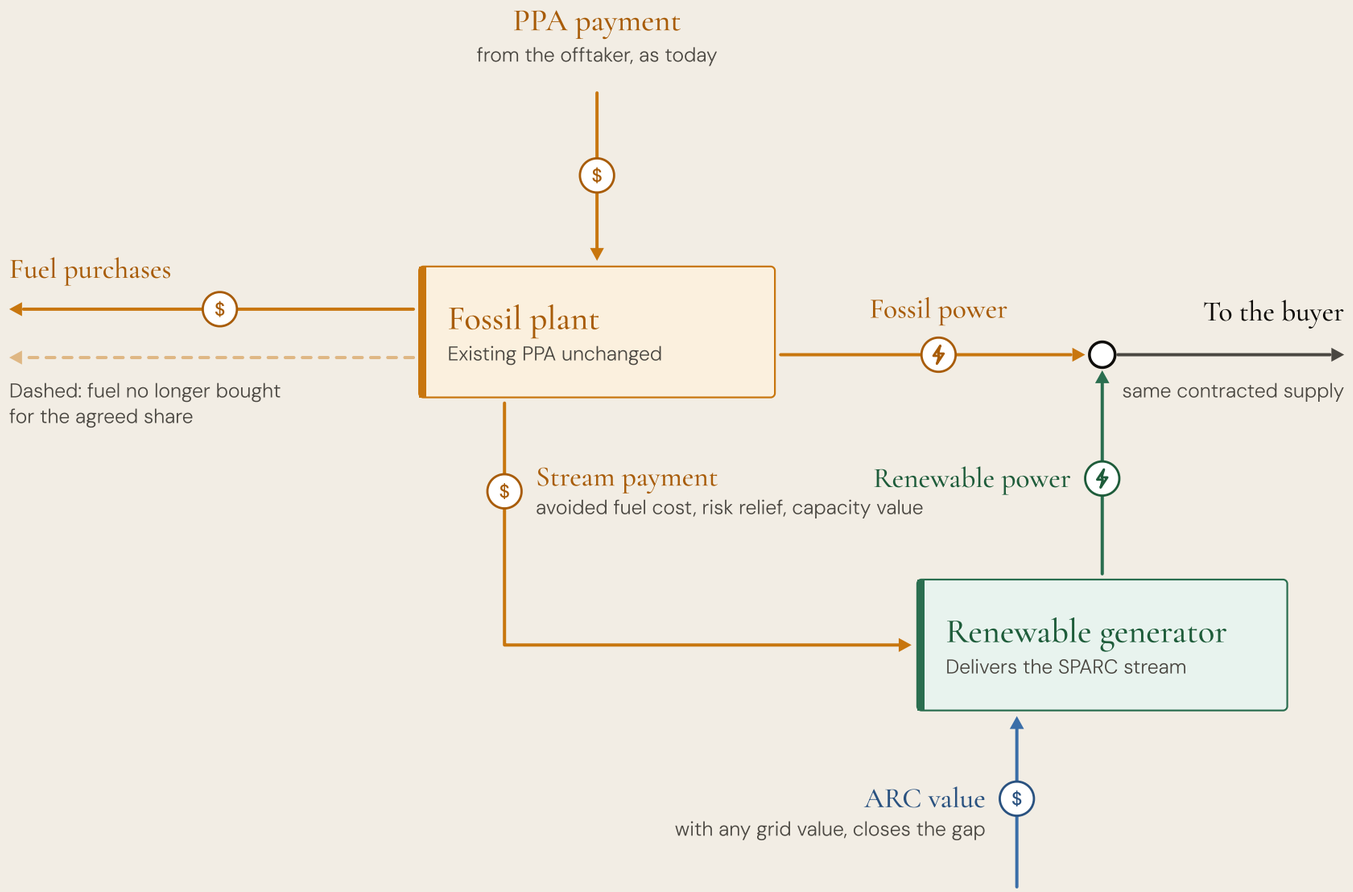
Where the money comes from, where it goes, and what closes the gap and why all parties want to take part

WHO PAYS WHOM

The money follows the existing contract

The offtaker keeps paying the fossil plant under the existing PPA. For the agreed share, the plant buys less fuel and passes a stream payment to the renewable generator.

ARC value, and grid value where it is recognised, close any remaining gap. The next slides put a number on each flow, using one example: a firm stream inside a coal PPA.



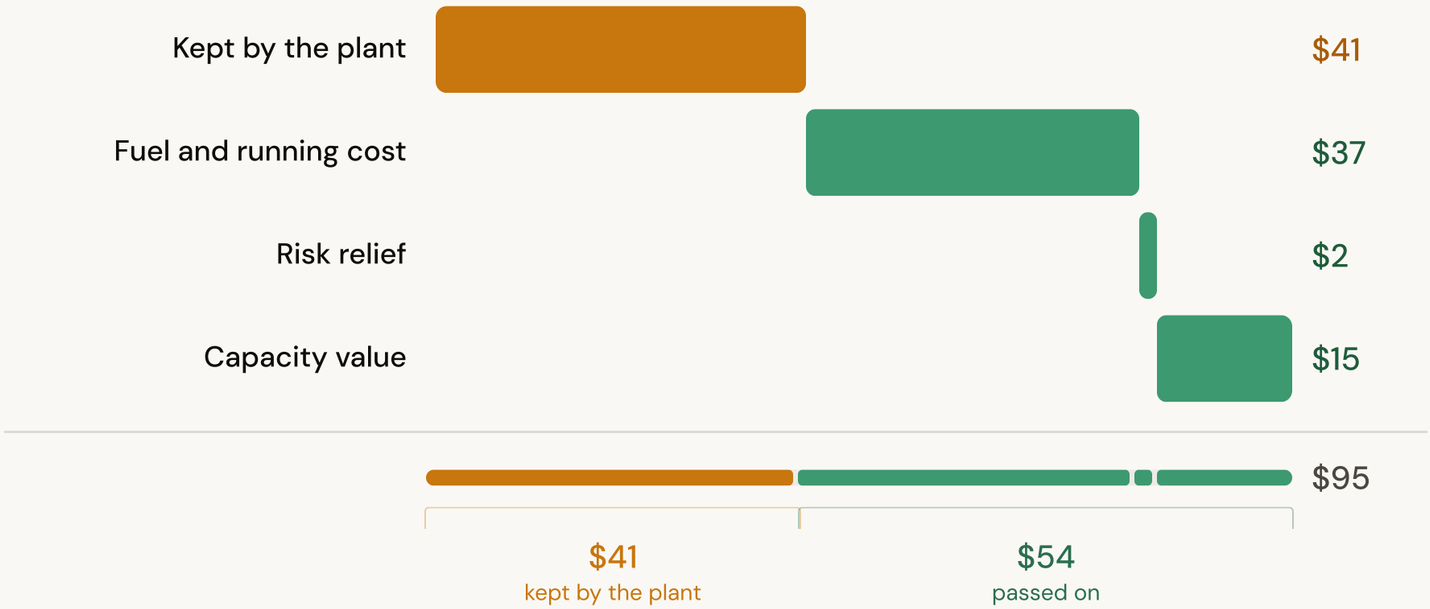
THE FOSSIL PLANT

The plant stays whole and passes on the rest

For each MWh of the stream, the PPA pays $95, as before. The plant keeps $41, enough to cover its fixed costs, debt service and margin.

The other $54 goes to the renewable generator: fuel the plant no longer buys, risk it no longer carries, and capacity value that moves with the firm obligation.

> The plant only assigns a stream if it keeps at least what it would earn by delivering that share itself.



Illustrative firm-stream case, adapted from Philippine coal PPA data and rounded. Actual values depend on the plant, the PPA, fuel terms and the delivery profile.

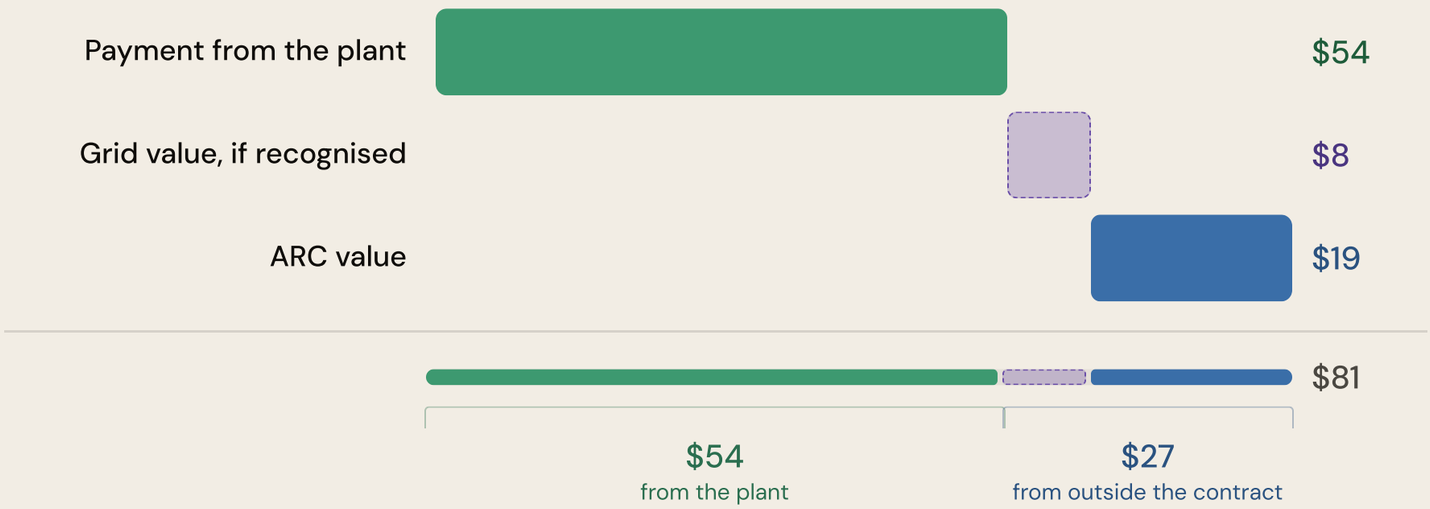
THE RENEWABLE GENERATOR

The contract covers most of what the generator needs

To deliver a firm stream, the renewable generator needs about $81 per MWh, including the cost of the risk it takes on. The $54 passed on by the plant covers two thirds of that.

Grid value, where a regulator or system operator recognises it, and ARC value close the remaining $27.

> ARC value fills what is left. It is not where the deal starts.



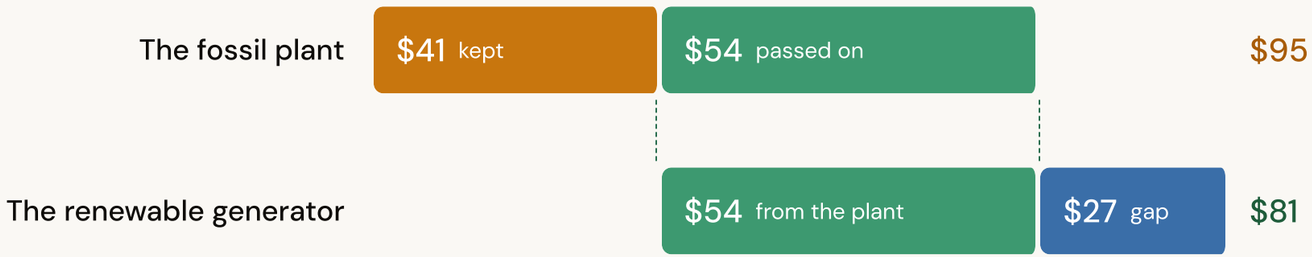
Illustrative firm-stream case, adapted from Philippine coal PPA data and rounded. Actual values depend on the plant, the PPA, fuel terms and the delivery profile.

BOTH SIDES TOGETHER

The money the plant no longer needs pays most of the generator

On one scale, the deal is easy to see. The $54 the plant no longer needs is what the renewable generator receives.

In this example, that leaves the generator $27 short per MWh. ARC value, and grid value where it is recognised, close that gap.



Illustrative firm-stream case, adapted from Philippine coal PPA data and rounded. Actual values depend on the plant, the PPA, fuel terms and the delivery profile.

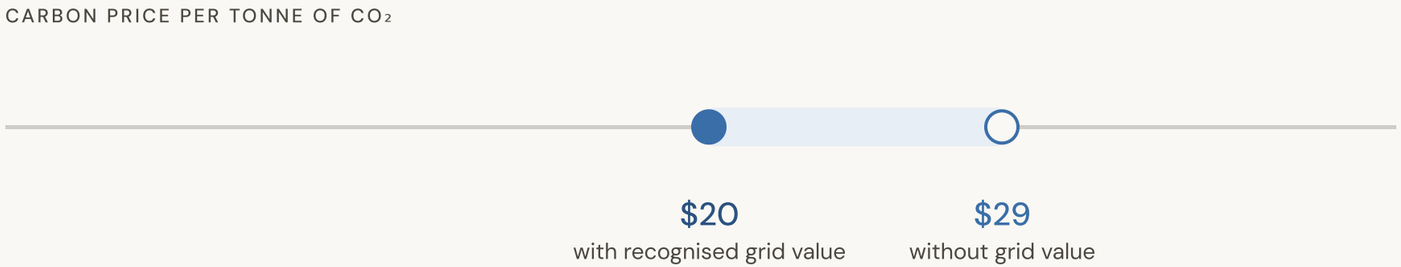
THE CARBON PRICE

The deal needs a carbon price of $20 to $29 per tonne

Each renewable MWh leaves about 0.95 tonnes of the plant's recorded emission right unused. Once delivery is verified, that is issued as ARCs.

Spread over those tonnes, the ARC value the generator needs works out at about $20 per tonne where grid value is recognised, and about $29 where it is not.

> The carbon price is an output of the deal, not an assumption built into it.



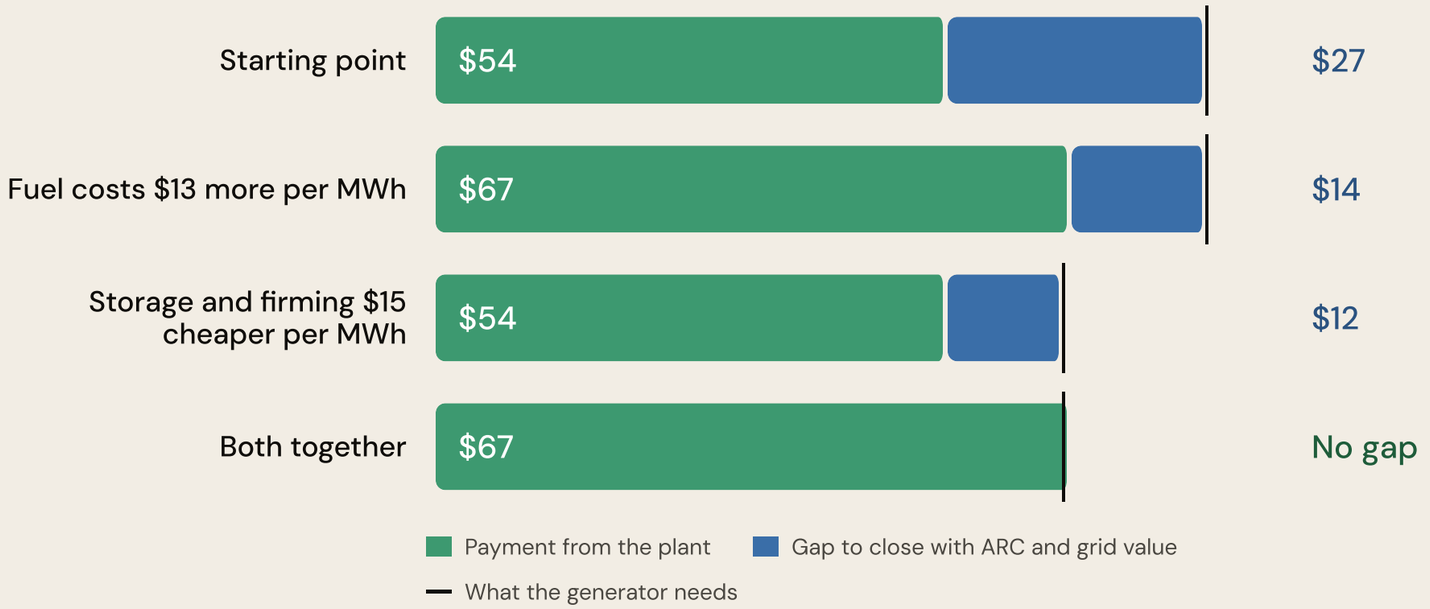
Firm-stream case: $19 of ARC value per MWh with $8 of recognised grid value, $27 without. The emission right per MWh depends on the plant and the method recognised for it.

WHAT MOVES THE GAP

Dearer fuel and cheaper firming can close the gap

Two things shrink the gap. When fuel gets more expensive, the plant saves more on every MWh it does not generate, so it can pay the renewable generator more. When storage and firming get cheaper, the generator needs less to deliver the stream.

In this example, each change on its own cuts the gap roughly in half. Together, the payment from the plant would cover the whole stream, with no ARC or grid value needed.



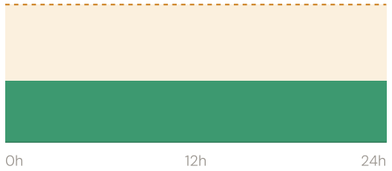
Firm-stream case before grid value. The changes apply the fuel and firming sensitivities from the SPARC economics paper. Values rounded.

STREAM DESIGN

A firmer stream costs more to deliver and moves more value

A 24/7 firm stream needs substantial storage, so it costs the most to deliver. It also moves the most capacity value, because the generator takes over the firm obligation. A 12-hour firm stream needs less storage and still moves much of that value.

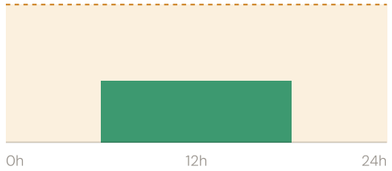
A shaped stream follows solar output and costs the least to deliver. The fossil plant keeps the firm obligation, so little capacity value moves with it. A 12-hour daytime stream matched to solar is often the easiest place to start.



24/7 firm

The same amount in every hour of the day.

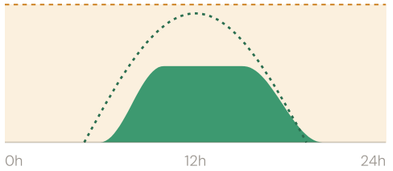
Delivery cost	●●●
Risk for the generator	●●●
Capacity value that moves	●●●



12-hour firm

The same amount through a set daytime window.

Delivery cost	●●○
Risk for the generator	●●○
Capacity value that moves	●●●



Shaped

Follows solar output, smoothed by a small battery.

Delivery cost	●○○
Risk for the generator	●○○
Capacity value that moves	●○○

Fossil PPA, over one day SPARC stream Raw solar output

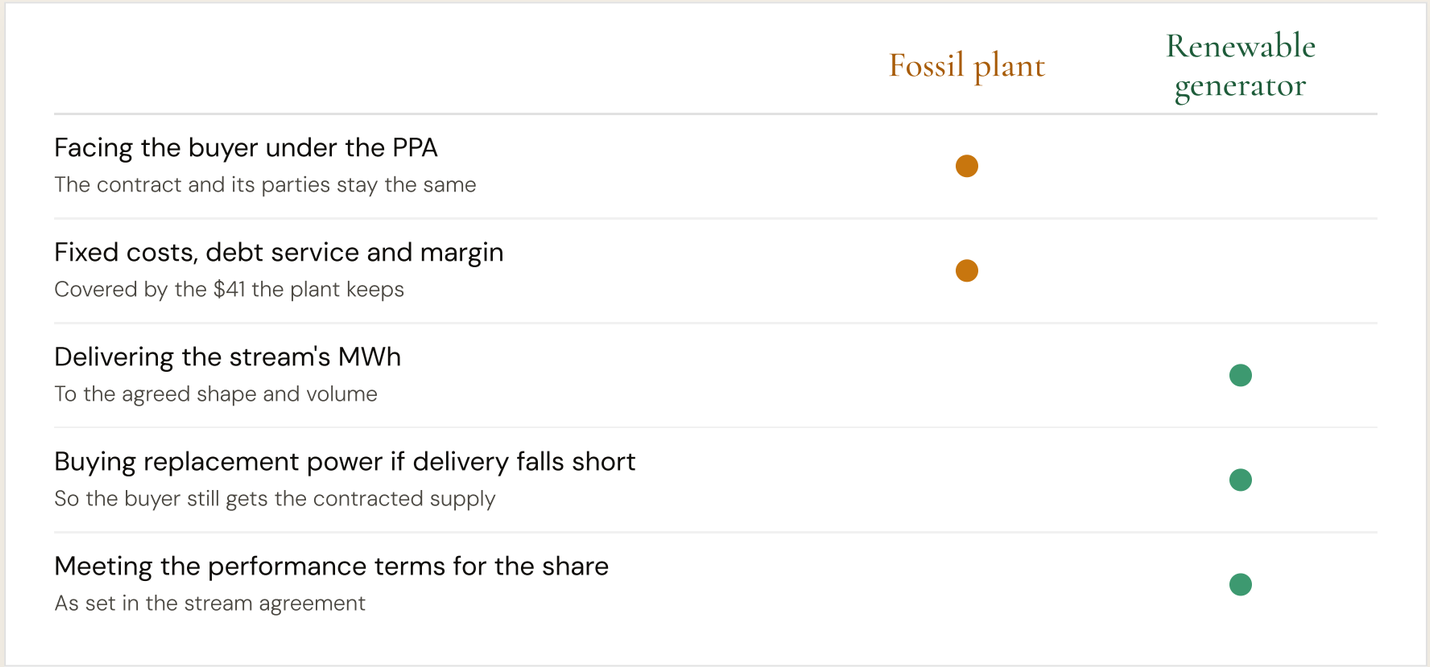
Indicative ranking. Actual values depend on the plant, the PPA and the delivery profile.

DELIVERY RISK

If delivery falls short, the generator covers it

The renewable generator takes on the delivery obligation for the stream. If it delivers less than agreed, it buys replacement power, so the buyer still receives the contracted supply.

That risk is priced in. It is part of the $81 the generator needs, and the reason the plant passes on $2 of risk relief.



ONE DEAL, THREE PARTS



The plant stays whole

The generator is paid for what it delivers

ARC value closes the rest

Green, from the *inside out.*