

SETuP – Lessons Learnt Report – Rollout Challenges



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Lessons Learnt Report: Rollout Challenges

Project Name: Solar Energy Transformation Program (SETuP)

ARENA Knowledge Category:	Logistical
Knowledge Type:	Construction
Technology Type:	Solar PV
State/Territory:	Northern Territory

Key learning

The SETuP program's footprint of 26 separate installs across the Northern Territory (an area of over one million square kilometres) has generated a number of learnings relating to planning and executing rollout. These are provided in brief below, categorised by program stage. For details on the program rollout, refer to the suite of SETuP knowledge sharing documents available at www.powerwater.com.au/setup.

Learnings from land acquisition

- The SETuP program was shaped first and foremost by the process of identifying and obtaining suitable land in each proposed community. The average timeframe for obtaining a lease after submitting an initial request was eighteen months, including Government processes as well as land council consultations and processes.
- Some smaller sites were removed from scope in exchange for a smaller number of larger sites because of lease negotiation delays and economy of scale benefits. In general, a smaller number of larger sites proved more economical for the same diesel savings.
- The bundling of sites into packages was determined by the lengthy and variable timing of obtaining a lease at each site, rather than by logistically ideal groupings.

Lease survey, geotechnical study, fencing and clearing rollout

- Geotechnical studies typically took four or five sample points per lease area. This was not sufficient to identify some issues such as areas of hard rock in otherwise easier conditions.
- Similarly, buried rubbish was a significant issue for the program rollout and was at times only identified after commencement of clearing.
- Buried car bodies were identified during the preparation of the Nyirripi site. Ground penetrating radar was deployed to attempt to map the extent of underground contamination; the EPC contractor was in the end able to manage screw pile construction without excavation of all buried items.
- Buried asbestos waste was identified at the community of Umbakumba during the clearing process. After site assessment it was determined that the project could not economically continue due to the costs of remediation required to make the site safe for further construction works. After analysis of several options, the decision was made to redeploy the array intended for Umbakumba to spare land behind the existing SETuP array at Maningrida, which the EPC was able to add to the end of its schedule for the North East communities.
- Separation of the clearing and fencing of sites into individual contracts enabled improved local outcomes without increasing risk, while still achieving competitive pricing.



The Umbakumba sublease area prior to commencing clearing

Learnings from electrical interconnection rollout

- Power and Water made the early decision to manage the interconnection using its existing electrical contracts, rather than bundling this into the EPC contractor's works. A point of common coupling cabinet was provided within each solar compound as the connection point for the EPC contractor. This approach proved effective, allowing the interconnect specification, design and rollout to occur in parallel with the EPC rollout.

Learnings from Engineer Procure Construct (EPC) rollout

- The businesses placed on the EPC shortlist experienced considerable change over the four year program, and the value of shortlisting therefore decreased; a shortlist is useful for a maximum of 24 months
- Even locally experienced contractors can underestimate logistical issues
- Allow time in EPC schedule for the first EPC site to act as a final design approval stage
- Splitting EPC work into separate Civil, Framing and Electrical teams each moving between sites at their own pace was logistically more complex but minimised down-time and reduced pressure on accommodation in communities
- Ensuring access to accommodation and catering were priority concerns requiring considerable work
- Site sequencing was impacted by road closures and rain, requiring backtracking.
- Limited access to maintenance capacity means that it makes sense to complete proactive plant maintenance when opportunistically passing by major centres
- Deliver materials to site in containers pre-packed to suit the site and the sequence of events at site

Learnings from Control System and Commissioning Rollout

- The first site rolled out at Maningrida was used as a final confirmation of a number of program features
- Allowing time to identify issues arising and adjust the remaining rollout was an important consideration



Engagement learnings

- Achieving opportunities for local enterprises and employment as well as meeting commercial, timeframe and quality requirements was a difficult balance

Implications for future projects

- Identify and progress more community lease options than required, and prepare for flexibility on sites
- Acknowledge and plan for the risks of unidentified contamination and subsurface conditions
- Dedicated logistics management resourcing is required to handle multiple teams across multiple sites, accommodation and catering, delivery of right gear to each site, planning maintenance and such.

Supporting information

The reader is encouraged to review the additional knowledge sharing outputs of the Solar SETUP program for further context and related learnings, available from the Power and Water website www.powerwater.com.au/setup