

# Less is more

By Jan Strom, First Crude Oil Ltd.

*Due to challenging financial times most operators have a closer focus on CAPEX or actually the need for reduced CAPEX, followed by the need for low OPEX.*

*Some of the key words have also been Fast Track developments, times have changed and it's time to look at new solutions.*

*Below I will describe a typical scenario for those changes.*

One of First Crude Oil's clients is operating a small oilfield with some gas production, the field was developed 12 years ago with focus on an easy way to develop it. The solution chosen was to tie back all wells directly to a production floater (semi sub rig) and from there into a Floating Storage Unit. Technically this was done by having production lines and umbilicals tied up to each individual well. This was a typical low cost and easy way to develop small oilfields in the 90's.

Well, some are actually still doing it and in some cases it's reasonable do it that way.

However, climate changes are upon us and increasing oil prices push for further developments of fields with more capacity and resources. But more than financial times have changed, climate too, if we like it or not. Some areas in the world are facing more weather, meaning a lot more stress to mooring systems, production risers and control umbilicals. Many operators have experienced costly shut in's reducing the regularity of hydrocarbon production to critical levels, not only financially but also technical.

Back to our case study, this particular field has a potential to extend the lifetime by getting more wells online. The potential of the field is most likely 4-6 additional oil producers adding more value for the owners and operator. But, and yes, there are some butts. The export infrastructure is getting old, many components are passed the design life and cost to upgrade will increase rapidly. The other problem is how to handle up to 6 additional wells with direct connections from the wells to the floater. It's not impossible, but it isn't really feasible. This is where we have to think less is more, CAPEX - less equipment - lower cost, OPEX - less equipment lower cost.

With up to 8 - 10 wells connected to the production infrastructure it is almost impossible to use the old system, calling for a subsea infrastructure to minimize number of lines and get a more reliable system. Our solution is to introduce a small subsea structure which can handle up to 4 wells and can be daisy chained for further extension for up to 8 or 12 wells. This system will consist of 2 subsea structures, one new dynamic umbilical, one or two subsea risers (depending on the requirement of independent well testing), subsea choke modules and a subsea control system.

Some of the challenges in this project are to interface different brands of Production Xmas trees, which have different configurations and functionality. And the new subsea control system needs to be interfaced to a topside control unit. However, these challenges are minor compared to extend the field with the old type of infrastructure.

Technical, it should be easy for our client to make this decision, but it will also be tempting to fall back to the old way of field development. However, this will only push the required change of the field architecture forward a limited time. When required to do further extensions it will not be possible with the old system.

It's easy to see the benefits of a new system, less equipment, more reliable production system, less production shut in's, possibility to re-use subsea equipment, low installation cost, etc...Less is more...also with regards to lifecycle services. It's quite common to see relative small subsea components, in the range of 2-3 tons, being retrieved and installed with running tools weighing 6-10 tons...Why? It doesn't take rocket science to design and develop subsea components to be small enough to be handled by standard workclass ROV's, there are already several vendors supplying products in that range, it's only a matter of using them.

What else is new? First Crude Oil Ltd has developed a low cost, low weight subsea system which will limit the number of subsea lines required. It is designed to be retrieved and refurbished and re-used at a different location, and finally it is available on a lease contract. Which is a new concept for subsea production systems, up to now the SPS hasn't been part of Farm in agreements, but we believe it will be in the near future. And we are looking forward to discuss this with the operators.

Stay connected!

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